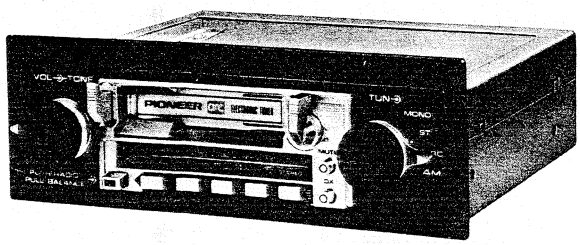
KE-2000 E

ARC TUNER CASSTTE CAR STEREO
WITH ELECTRONIC AM/FM TUNER

KE-2300 E

ARC TUNER CASSETTE CAR STEREO
WITH ELECTRONIC FM/MW/LW TUNER

SERVICE MANUAL



Subject:
For Cassette Mechanism, refer to the Service Manual of Model KP-8000 or KP-5000.

SPECIFICATIONS

General

Power source . . . . . DC 13.8V (11 ~ 16V allowable)
Grounding system . . . . . Negative type
Power output (max.) . . . . . 6W + 6W
(continuous) . . . . . 5W + 5W
Load impedance . . . . . 4Ω (2 ~ 8Ω allowable)
Max. current consumption 1.2A
Dimensions (W × H × D) . . . . . 180 × 50 × 150 mm
Nose size (W × H × D) . . . . . 105 × 42 × 16 mm
Shaft interval . . . . . 130 mm
Weight . . . . . 1.7 kg

Tape player

Tape . . . . . Compact cassette tape (C-30 ~ C-90)
Tape speed . . . . . 4.8 cm/sec. (1-7/8 ips)
Fast forward time . . . . . Within 100 sec. for C-60
Rewind time . . . . . Within 100 sec. for C-60
Wow & flutter . . . . . No more than 0.28% (WRMS)
Frequency response . . . . . 30 ~ 12,000 Hz
Cross talk . . . . . More than 40 dB
Signal-to-noise ratio . . . . . More than 45 dB

FM tuner

Frequency range . . . . . 88 ~ 108 MHz (KE-2000)
88 ~ 104 MHz (KE-2300)
Usable sensitivity . . . . . 13.8 dBf (1.9μV/150Ω)
50 dB quieting sensitivity . . . . . 17.5 dBf (2.9μV/150Ω, mono)
39.8 dBf (38μV/150Ω, stereo)
Signal-to-noise ratio . . . . . 60 dB
Capture ratio . . . . . 1.5 dB
Selectivity . . . . . 70 dB (±400 kHz)
Image rejection . . . . . 45 dB
IF rejection . . . . . 80 dB
Distortion . . . . . 0.5% (at 60 dB, 400 Hz, mono)
0.5% (at 60 dB, 1 kHz, stereo)
Frequency response . . . . . 30 ~ 15,000 Hz
Muting level . . . . . 17.5 dBf (2.9μV/150Ω)
Stereo separation . . . . . 32 dB (at 60 dB, 1 kHz)

MW (AM) tuner

Frequency range . . . . . 525 ~ 1,605 kHz
Sensitivity 30μV
Selectivity . . . . . 25 dB (±10 kHz)
Local/distant switch effect . . . . . 14 dB attenuation
Max. input signal (distortion 5%) . . . . . 130 dB

LW tuner (KE-2300 only)

Frequency range . . . . . 150 ~ 280 kHz
Sensitivity 70μV
Selectivity . . . . . 35 dB (±10 kHz)
Local/distant switch effect . . . . . 14 dB attenuation
Max. input signal (distortion 5%) . . . . . 130 dB

Note.
Specifications and design subject to possible modification without notice due to improvements.

PIONEER®

CONTENTS

1. PARTS LOCATION 1
2. CIRCUIT DESCRIPTION 1
3. ADJUSTMENT
   - 3.1 FM IF Adjustment 7
   - 3.2 IF/MPX Adjustment 7
   - 3.3 Auto Level Adjustment 7
   - 3.4 FM Tracking Adjustment 8
   - 3.5 AM IF Adjustment (KE-2000) 9
   - 3.6 AM Tracking Adjustment (KE-2000) 10
   - 3.7 MW/LW IF Adjustment (KE-2300) 11
   - 3.8 MW/LW Tracking Adjustment (KE-2300) 12
4. SCHEMATIC CIRCUIT DIAGRAM (KE-2000) 13
5. SCHEMATIC CIRCUIT DIAGRAM (KE-2300) 15
6. CONTROL UNIT (CWE-271) (KE-2000) 19
7. AUDIO CONTROL UNIT (CWG-055) 22
8. CONTROL UNIT (CWE-272) (KE-2300) 23
9. AM TUNER UNIT (CWE-268) (KE-2000) 26
10. AM TUNER UNIT (CWE-267) (KE-2300) 28
11. FM FRONT END UNIT (CWB-061) (KE-2000) 30
12. FM FRONT END UNIT (CWB-062) (KE-2300) 31
13. MAIN AMPLIFIRE UNIT (CWH-076) 32
14. PRE AMPLIFIER UNIT (CWF-058) 34
15. SENSING UNIT (CWK-163) 35
16. MISCELLANEOUS PARTS LIST 35
17. CABINET EXPLODED VIEW 36
18. CHASSIS EXPLODED VIEW 37
19. PACKING METHOD 39

1. PARTS LOCATION

KE-2000
KE-2300

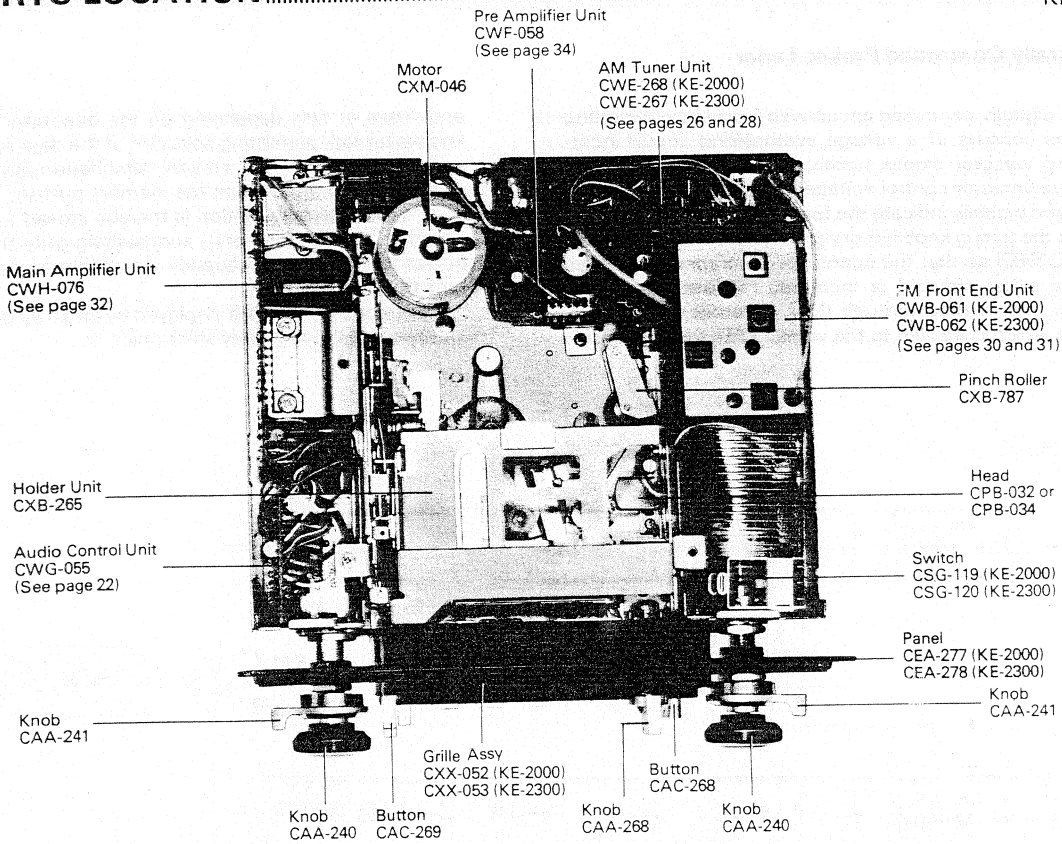


Fig. 1

2. CIRCUIT DESCRIPTION

- **Audio Level Diagram**

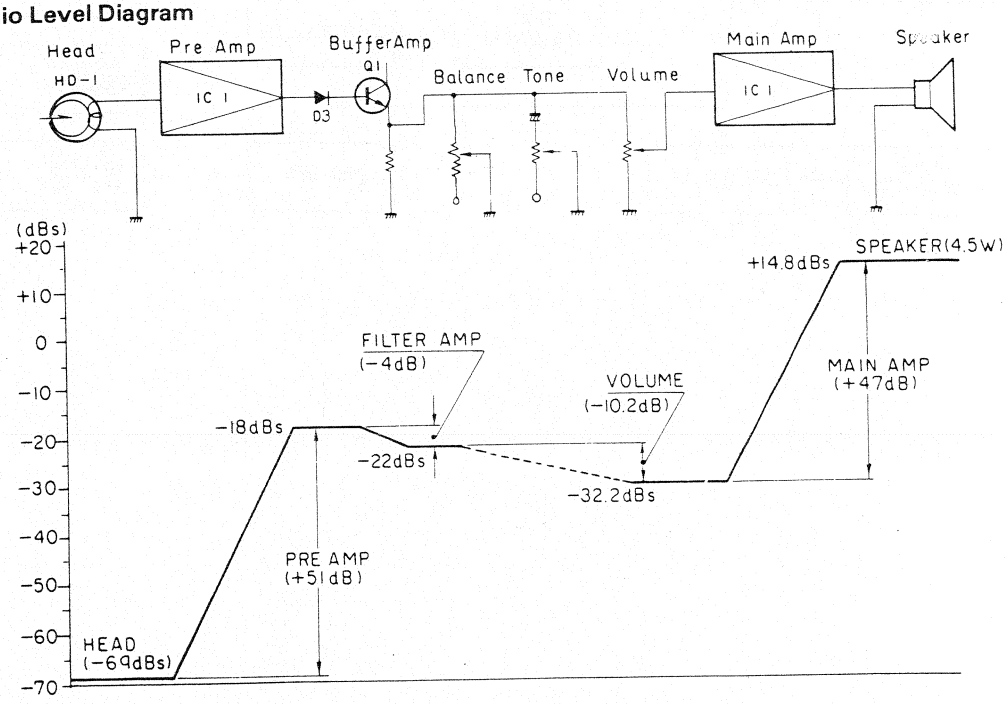


Fig. 2

CIRCUIT DESCRIPTION

• Digitally Controlled Preset Tuner

This digitally controlled circuit with frequency presetting systems consists of a voltage synthesizing circuit incorporating varactor diodes (varactors), and is designed to generate varactor control voltage, memorize tuning frequency, and digitally indicate the tuned frequency.

Turn the tuning knob left or right to feed tuning pulses to LSI (PD1002) so that the contents of the internal counter may be either reduced or increased. The output of the counter is converted through the D/A converter into DC voltage which is applied to the varactor. The tuning frequency rises or falls depending on the direction the tuning knob is turned, permitting selection of the desired stations.

To preset the tuned station, simultaneously push the station selector button and the memory button. The frequency of the selected station is thereby stored in the RAM (Random Access Memory), and pushing only the selector button will recall the frequency stored in memory to again tune the preset station.

The frequency tuned is displayed by an array of 32 LEDs. This readout is completely electronic.

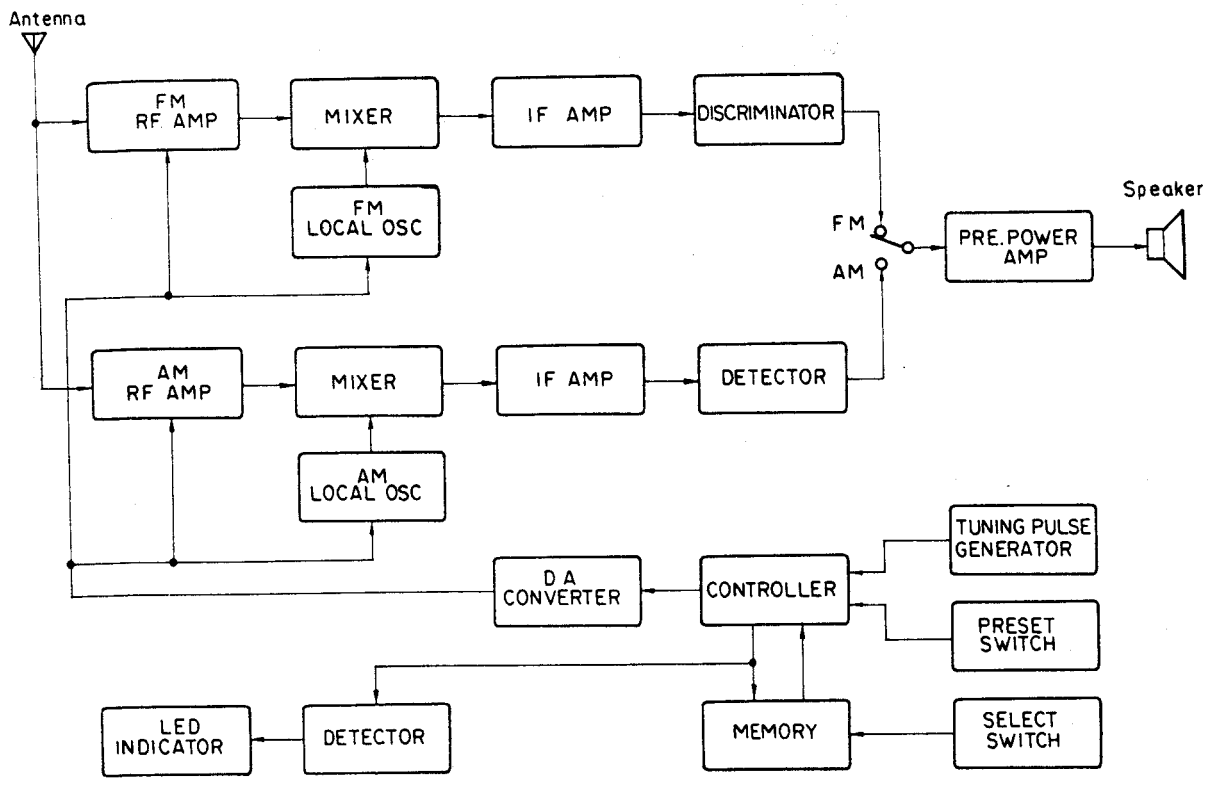


Fig. 3

• Control LSI (PD1002)

The block diagram of LSI PD1002 is shown in Fig. 4. The essential function here is represented by the 11 bit up/down counter, the output of each bit being connected to a D/A converter in order to generate a DC voltage corresponding to the contents of the counter. The contents of this counter is variable by means of applying externally generated tuning pulses so that the desired voltage output level can be obtained. Each bit, moreover, is connected with the RAM (Random Access Memory) so that the output voltage of the tuned frequency can be stored in order that station presetting can be performed. This process is via digital signals. And, of course, this stored information can be recalled instantly to the counter to allow tuning of the memorized preset station frequency.

Because semiconductor memories are volatile—that is, memory disappears with removal of supply voltage—voltage must continue to the memory portions of the circuit even with power OFF. The CMOS PD1002, however, requires extremely low levels of power: with the oscillator not in operation power consumption is only several tens μW; with the oscillator in operation the power consumption is 20mW. Therefore, with the oscillator not in operation, connection of the PD1002 poses no problem to car batteries. In other words, with the enable terminal at low levels there is no oscillation, and the terminal is designed to be at low levels with the power supply switch set to OFF.

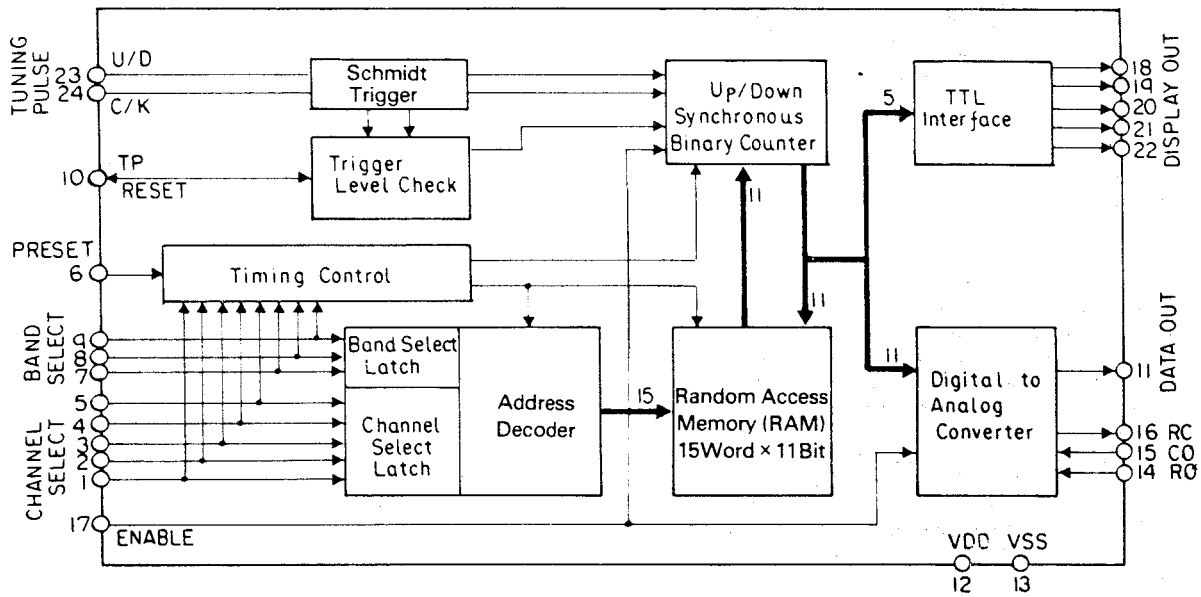


Fig. 4

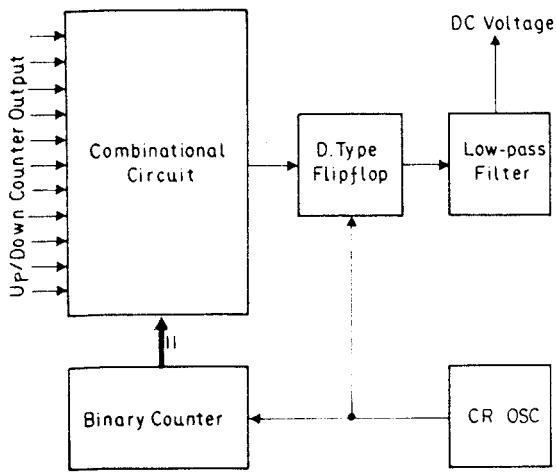


Fig. 5

• Tuning Pulse Generator

This device (basic operating principles are shown in Fig. 6) generates up/down pulses and clock pulse by turning the tuning knob. The direction the disc is turned determines whether up or down pulses are generated (see Fig. 7). These pulses determine the contents of the up/down counter.

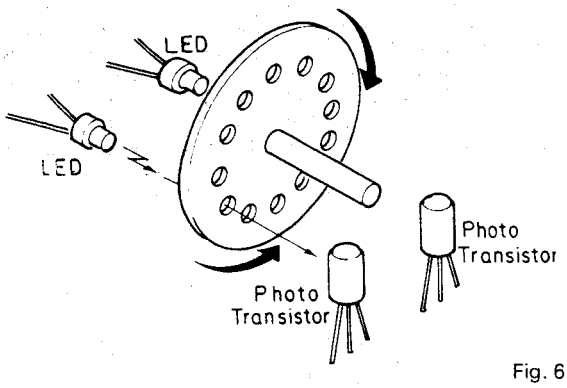


Fig. 6

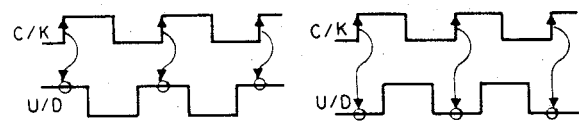


Fig. 7

• AM Tuner

The KE-2000 tuner is distinguished from the conventional μ tuning type counterpart by the antenna input circuit. The varactor tuner of the KE-2000 is equipped with an RF Buffer in the first stage. The reason for this arrangement is the car antenna, the equivalent circuit as shown in Fig. 8. The 15 pF represents an equivalent capacitance of the antenna bar section, and the 65 pF equivalent capacitance of the cable connected to the antenna. The μ tuning type tuner is designed to make use of the combined capacitances of 15 pF and 65 pF, and 80 pF as part of the tuned circuit which requires an inductance that allows covering the entire AM band from 520 kHz to 1660 kHz with the total capacitance of 150 pF. Therefore, the capacitance variation ratio is $(1660 \div 520)^2 = 10.19$. The voltage to be applied to the varactor is in the range 1.4 V to 9 V. The standard SVC-303 provides a capacitance of 417 pF for 1.4 V and 22.86 pF for 9 V, and the variation ratio being 18.24. This means the band ranging from 520 kHz to 1660 kHz can be adequately covered.

The varactor, however, if used in the input circuit, will result in a capacitance variation ratio of $(417 + 80) \div (22.86 + 80) = 4.83$ with the addition of 80 pF making up the equivalent antenna circuit and allowing no more than half the required band to be covered. This is the reason an RF buffer amplifier is required to eliminate the 80 pF loading capacitance.

The varactor tuner has yet another advantage. The μ tuning type tuner requires adjustment of sensitivity when tuning in a weak signal around 1 MHz in order to prevent tracking error due to the difference in capacitance in the antenna cable. The varactor tuner eliminates this problem.

Q1 (2SK49) directly connected to the antenna is most vulnerable to surging, and D1 (ITT73N) is placed between the input terminal and ground to absorb it. ITT73N is rated at 1A per second. The input section of the FM tuner connected in parallel to the antenna input terminal incorporates a discharge element with a firing potential of less than 2 kV.

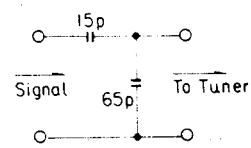


Fig. 8

• Oscillator Circuit

Fig. 9 shows the tuning voltage supply circuit and the varactor temperature compensating circuit. Adjusted for the dispersion properties of the varactor, the working voltage is made variable so as to permit adjustment of the band to be covered. E1 is a tuning variable power supply, E2 is a stabilized power supply of 9.4 V, and R1 is a resistor for the filter incorporated in the output section of the control IC (PD1002). The control IC is driven via the same voltage as E2 so that the maximum voltage of E1 is 9.4 V, and the maximum voltage to be applied to the varactor cathode, regardless of the volume position, is 9.4 V. The minimum voltage with E1 at 0 V is determined by the values of E2, R1 , R2 , and VR1; and the minimum voltage is designed to be 1.8 V with the standard varactor.

The anode side of the varactor is equipped with a temperature compensating circuit which is composed of varistors and resistors. The anode electric potential is 0.4 V, and the voltage to be applied to either end of the varactor is 1.4 V to 9 V. The capacitance compensating voltage to match the change in the temperature of the varactor varies with the working voltage from 1.1 mV/°C. The voltage variation of the varister MV-1 is −2mV/°C, and the anode side of the varister, will lead to overcompensation. Therefore, the variation in voltage of the varactor is divided through resistors R4 and R5 to provide a voltage change of some −1.3 mV/°C R3 , a biasing resistor for the varister, is designed to supply 3 mA.

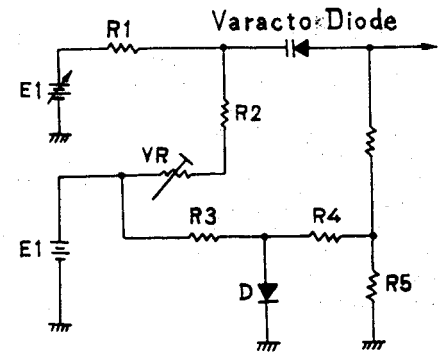


Fig. 9

• LW/MW Tuner

An LW/MW tuner should be able to tune the two bands (MW: 515 — 1,630KHz; LW: 145 — 295KHz). Therefore, the LW/MW tuner has two different types of applied voltages for the variable capacitor, high frequency circuits, and oscillator circuits which should be switched for MW and LW. For the applied voltages of the variable capacitor, the independent volumes for MW and LW are mounted on this tuner for adjusting the applied voltages, and the voltages to be applied are changed with a mechanical switch. For the high frequency circuits, the coil for MW is connected to that for LW in a series. While the MW is being tuned, the coil for LW is shortcircuited; while the LW is being tuned, the high frequency circuits are changed with a switch diode so that both the coils for MW and LW may be worked as the tuning coil for LW. For the oscillator circuits, independent oscillator circuits for MW and LW are incorporated in the tuner and are changed with a switch diode.

• Noise Suppressor

The input signal containing the pulsive noise as illustrated in Waveform-1 is first impedance-converted by the buffer amplifier, then coupled to the gate circuit via the low-pass filter.
Meanwhile, the high-pass filter filters out only the pulsive noise component from the input signal and feeds the noise component to the noise detector where it is amplified and rectified. (See Waveform-2)
To cope with weak-signal noise, the noise detector is supported with the AGC (Automatic Gain Control) circuit. The noise component from the noise detector output is waveform-shaped by the mono-stable multivibrator (See Waveform-3). The output from the mono-stable multivibrator then couples to the gate circuit as a control-pulse array which is used to cut out only the pulsive noise component from the audio signal.
The memory provided at where holds the audiosignal level constant while the gate circuit is "closed".
The 19 kHz pilot-hold circuit serves to prevent stereo pilot-signal intermission.
The audio signal then sustains high-frequency-phase compensation to compensate for the phase shift due to the low-pass filter, then is coupled to the output terminal.

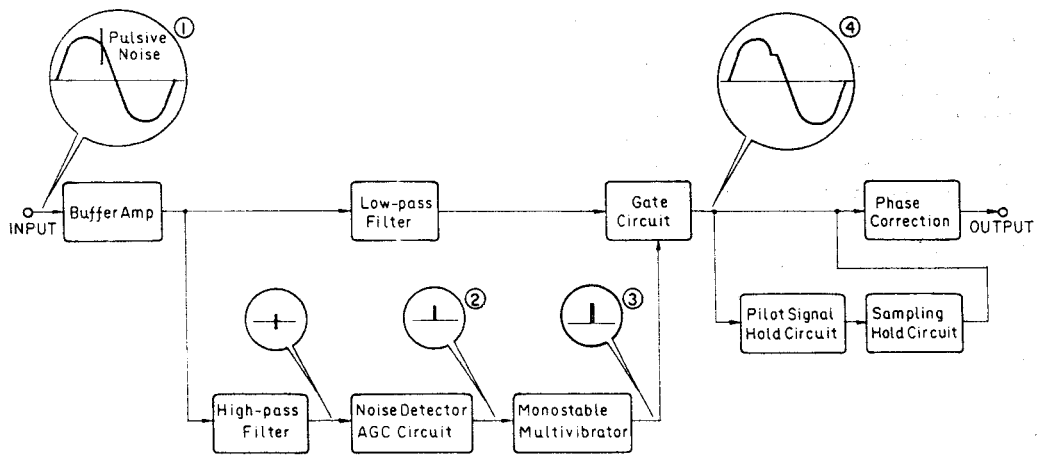


Fig. 10

3. ADJUSTMENT

3.1 FM IF ADJUSTMENT

- **Connection Diagram**

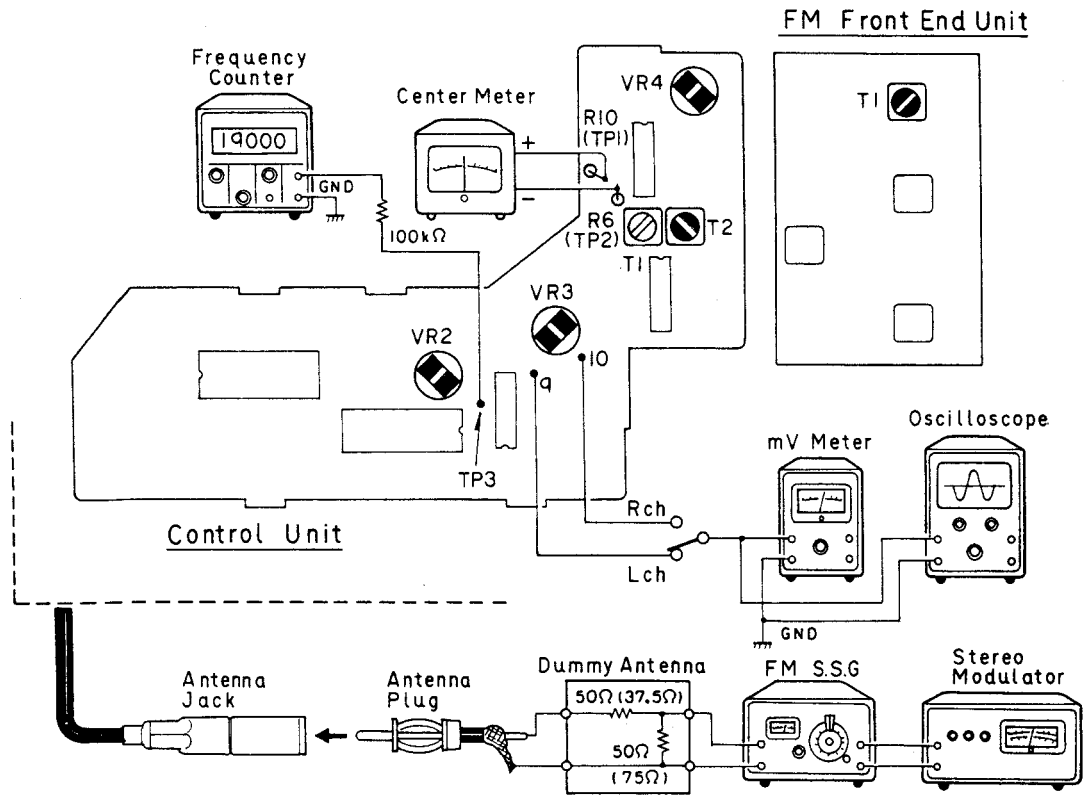


Fig. 11

- **To Adjust**

1. Add input signal of zero from SSG and adjust T2 so that the pointer of center meter (use one graduated for over 200μA) will come to the center.
2. Add output signal of 98 MHz 60 dB from SSG, multi-signal of modulated frequency 1 kHz of stereo modulator and tune to 98 MHz on the dial (the pointer of the center meter is at the center).
3. Adjust T1 (FM Front End Unit) so that separated signal will be minimal in its distortion factor.
4. Adjust FM IF by repeating the above procedure, steps 1, 2 and 3.

3.2 IF/MPX ADJUSTMENT

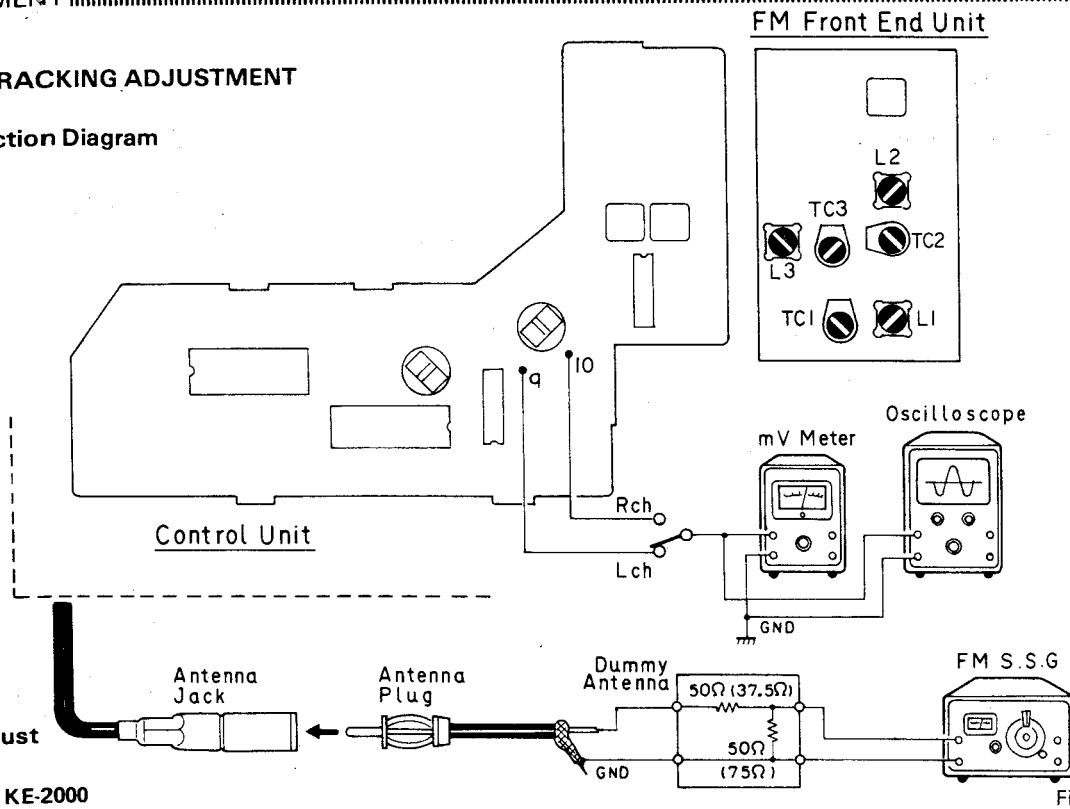
1. Shown in Fig. 11.
2. Select the band selector switch to stereo position.
3. Obtain non-modulation signal by setting SSG output at 60 dB (μV) 98 MHz. Adjust VR2 so that the frequency counter indicates 19 kHz ±30 Hz.
4. Obtain stereo modulation signal by setting SSG output at 60 dB (μV). Adjust VR3 to secure maximum separation.

3.3 AUTO LEVEL ADJUSTMENT

1. Shown in Fig. 11.
2. Select the band selector switch to ARC position.
3. Set SSG at 98 MHz and tune using the tuning knob.
4. As SSG output gradually drops from 60 dB (μV) to low level, and SSG output reduced to 35 ±2 dB (μV), turn VR4 carefully and set it where stereo indicator is turned off.

3.4 FM TRACKING ADJUSTMENT

- **Connection Diagram**



- **To Adjust**

In case of KE-2000

Fig. 12

SSG Frequency	Pointer Position	Adjustment point	Note
1. 87.0 MHz (400 Hz, 100% modulation), output level 8 dB (μV)	Minimum	L3	87.0 MHz can be received
2. 108.6 MHz (400 Hz, 100% modulation), output level 8 dB (μV)	Maximum	TC3	108.6MHz can be received
3. Repeat items (1) and (2) alternately so that broadcast can be received at the frequency between 87.0 MHz and 108.6 MHz.			
4. 90 MHz (400 Hz, 100% modulation), output level 5 dB (μV)	Tuned position	L1, L2	Maximum output
5. 106 MHz (400 Hz, 100% modulation), output level 5 dB (μV)	Tuned position	TC1, TC2	Maximum output
6. Repeat items (4) and (5) alternately so that the mV meter indicates maximum output.			

In case of KE-2300

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 87.0 MHz (400 Hz, 100% modulation), output level 8 dB (μV)	Minimum	L3	87.0 MHz can be received
2. 105.0 MHz (400 Hz, 100% modulation), output level 8 dB (μV)	Maximum	TC3	105.0 MHz can be received
3. Repeat items (1) and (2) alternately so that broadcast can be received at the frequency between 87.0 MHz and 105.0 MHz.			
4. 90 MHz (400 Hz, 100% modulation), output level 5 dB (μV)	Tuned position	L1, L2	Maximum output
5. 104 MHz (400 Hz, 100% modulation), output level 5 dB (μV)	Tuned position	TC1, TC2	Maximum output
6. Repeat items (4) and (5) alternately so that the mV meter indicates maximum output.			

3.5 AM IF ADJUSTMENT (KE-2000)

- **Connection Diagram**

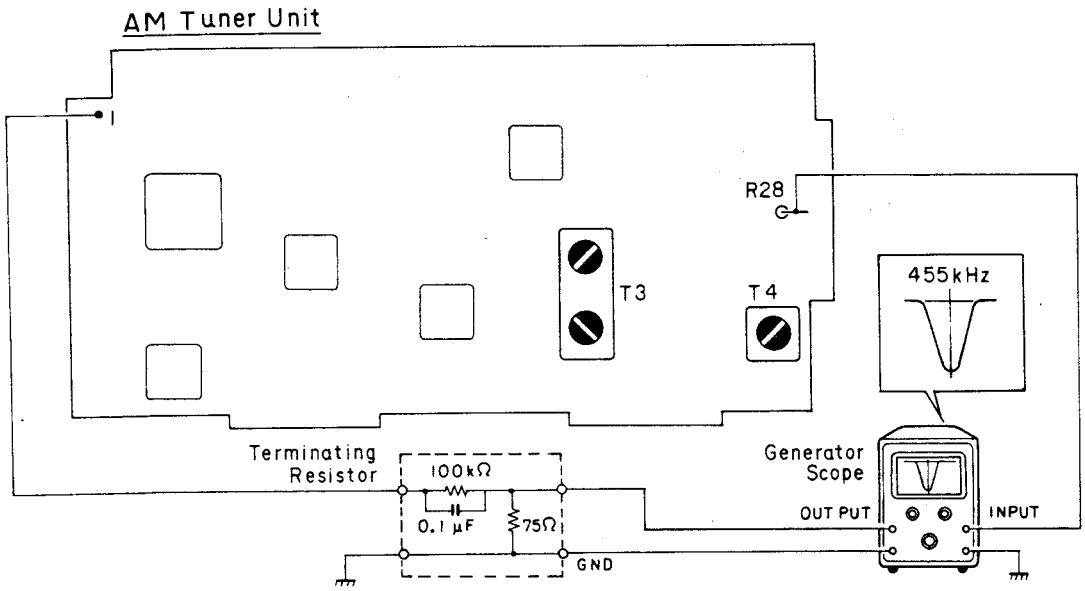


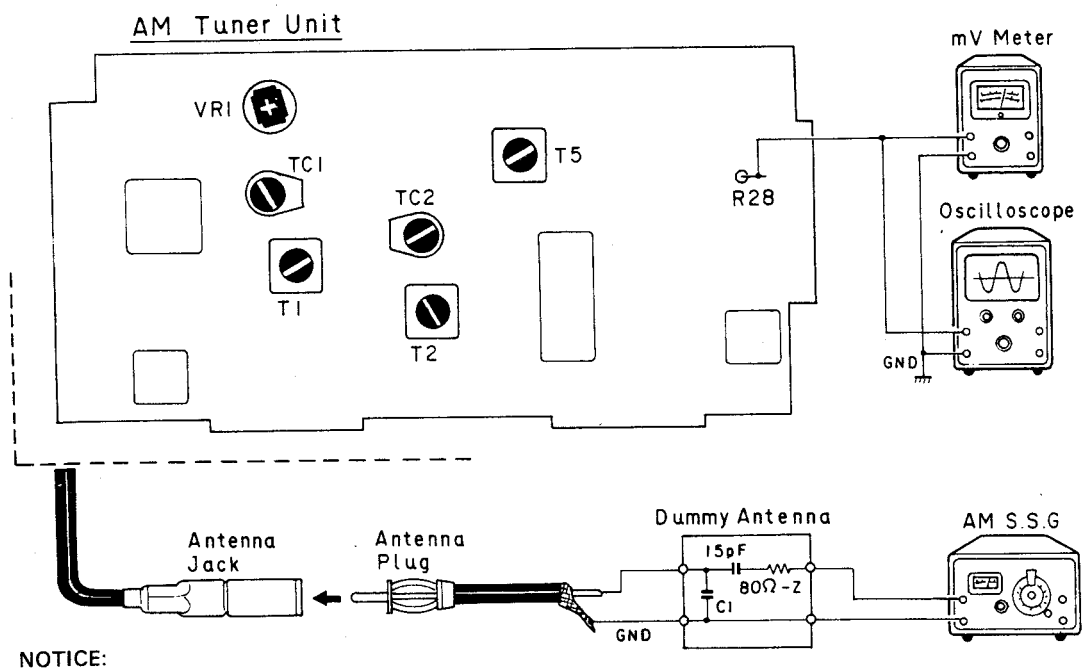
Fig. 13

- **To Adjust**

1. Set Generator Scope as follows:
   Frequency centering on sweep . . . . . 455 kHz
   Input level 0.3Vp-p/cm
   Output level . . . . . 3mV∿10mV
2. Tune to a nearby, 1,600 kHz station.
3. Turn the cores of T3 and T4, and adjust so that U-curve will be at maximum amplitude and best symmetry.

3.6 AM TRACKING ADJUSTMENT (KE-2000)

- **Connection Diagram**



NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of the S.S.G.

Fig. 14

- **To Adjust**

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 1,620 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Maximum	T5	1,620 kHz can be received
2. 515 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Minimum	VR1	515 kHz can be received
3. 600 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Tune to 600 kHz	T1, T2	mV meter at maximum
4. 1,400 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Tune to 1,400 kHz	TC1, TC2	mV meter at maximum
5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output.			

3.7 MW/LW IF ADJUSTMENT (KE-2300)

- **Connection Diagram**

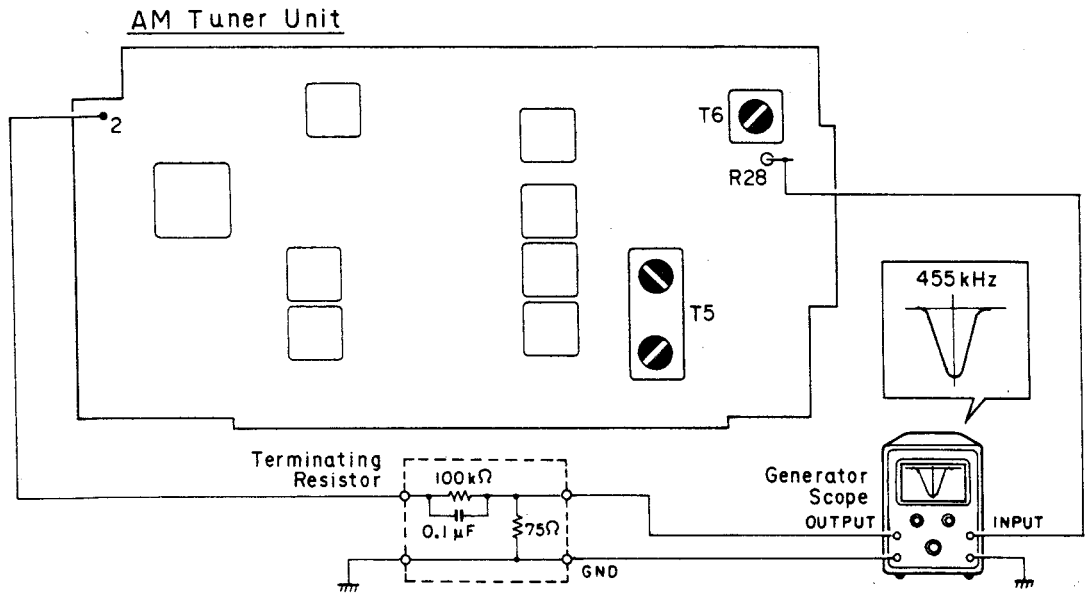


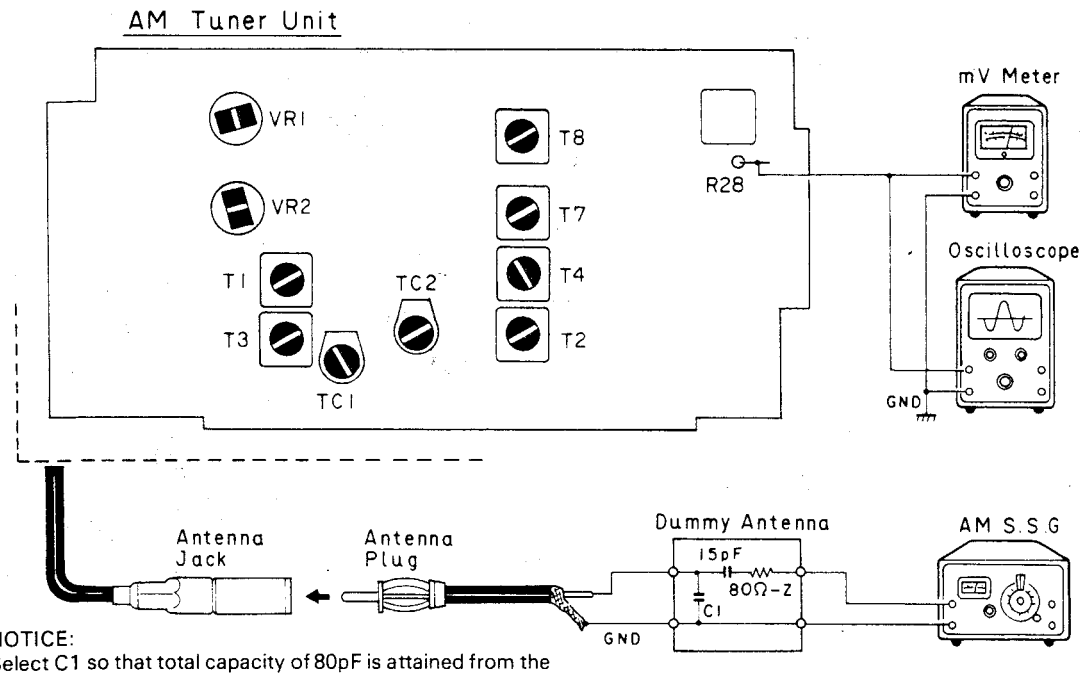
Fig. 15

- **To Adjust**

1. Set Generator Scope as follow:
   Frequency centering on sweep . . . . . 455 kHz
   Input level 0.3Vp-p/cm
   Output level . . . . . 3mV~10mV
2. Tune to a nearby 1,600 kHz station of MW.
3. Turn the cores of T5 and T6, and adjust so that U-curve will be at maximum amplitude and best symmetry.

3.8 MW/LW TRACKING ADJUSTMENT (KE-2300)

- **Connection Diagram**



NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of the S.S.G.

Fig. 16

- **To Adjust**

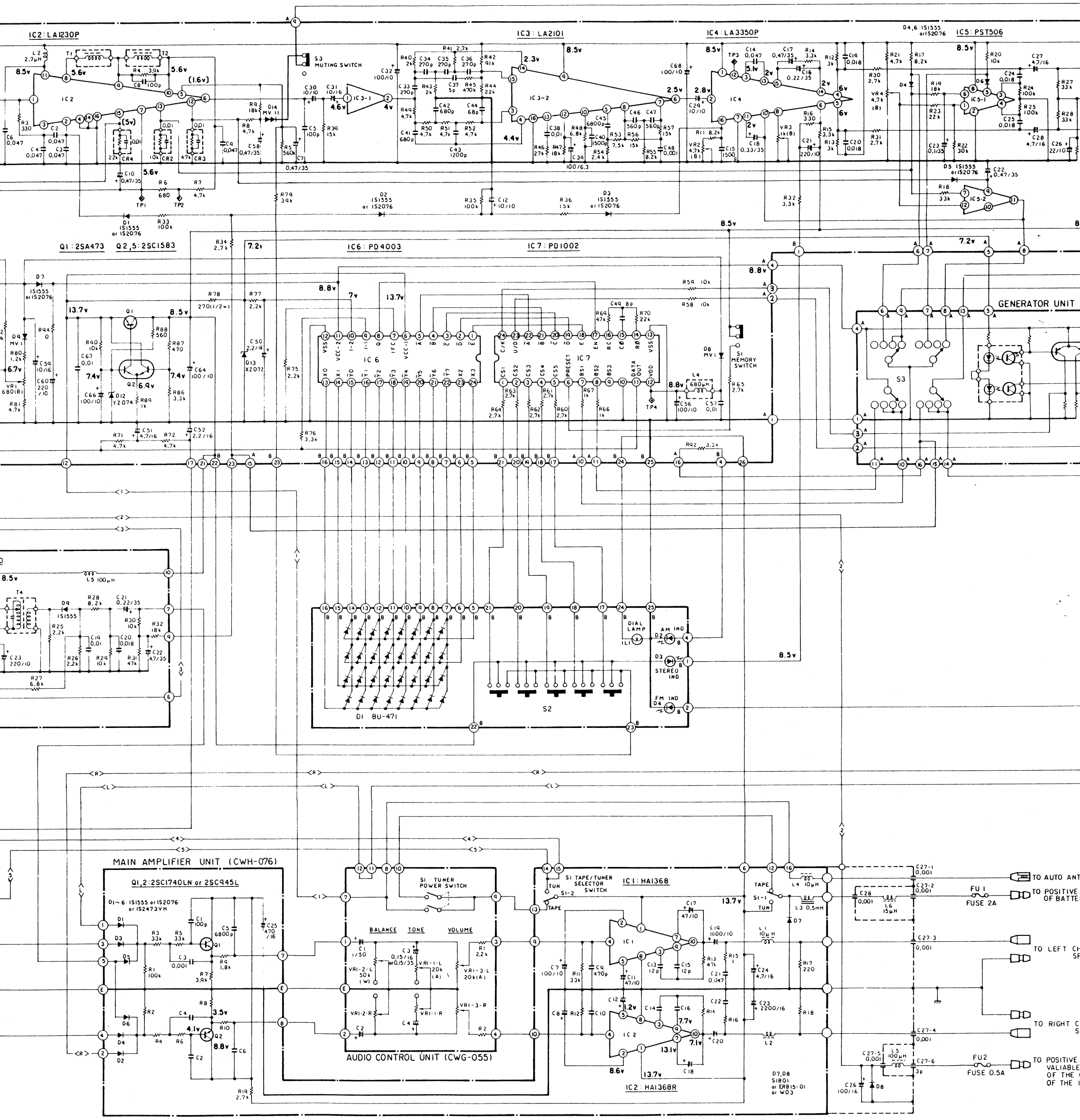
In case of MW (Select the band selector switch to MW)

SSG Frequency	Pointer Position	Adjustment	Note
1. 1,630 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Maximum	T7	1,630 kHz can be received
2. 515 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Minimum	VR1	515 kHz can be received
3. 600 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Tune to 600 kHz	T1, T4	mV meter maximum
4. 1,400 kHz (400 Hz, 30% modulation), output level 30 dB (μV)	Tune to 1,400 kHz	TC1, TC2	mV meter maximum
5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output.			

In case of LW (Select the band selector switch to LW)

SSG Frequency	Pointer Position	Adjustment	Note
1. 295 kHz (400 Hz, 30% modulation), output level 35 dB (μV)	Maximum	T8	295 kHz can be received
2. 145 kHz (400 Hz, 30% modulation), output level 35 dB (μV)	Minimum	VR2	145 kHz can be received
3. 215 kHz (400 Hz, 30% modulation), output level 35 dB (μV)	Tune to 215 kHz	T2, T3	mV meter maximum

4. SCHEMATIC CIRCUIT DIAGRAM (KE-2000)


IC2 : LA1230P
IC3 : LA2101
IC4 : LA3350P
D4,6 : 1S1555 or 1S2076
IC5 : PST506
S3 MUTING SWITCH
Q1 : 2SA473
Q2,5 : 2SC1583
IC6 : PD4003
IC7 : PD1002
D7 1S1555 or 1S2076
D9 MV1
D12 YZ074
D13 XZ072
D8 MV1
S1 MEMORY SWITCH
GENERATOR UNIT
D1 BU-471
S2
DIAL LAMP
AM IND
STEREO IND
FM IND
MAIN AMPLIFIER UNIT (CWH-076)
Q1,2 : 2SC1740LN or 2SC945L
D1~6 : 1S1555 or 1S2076 or 1S2473VH
AUDIO CONTROL UNIT (CWG-055)
S1 : TUNER POWER SWITCH
S1 : TAPE/TUNER SELECTOR SWITCH
IC1 : HA1368
IC2 : HA1368R
D7,D8 S1B01 or ERB15-01 or W03
TO AUTO ANT
TO POSITIVE OF BATTE
TO LEFT CH SP
TO RIGHT C S
TO POSITIVE VALIABLE OF THE OF THE
FUSE 2A
FUSE 0.5A
FU1
FU2

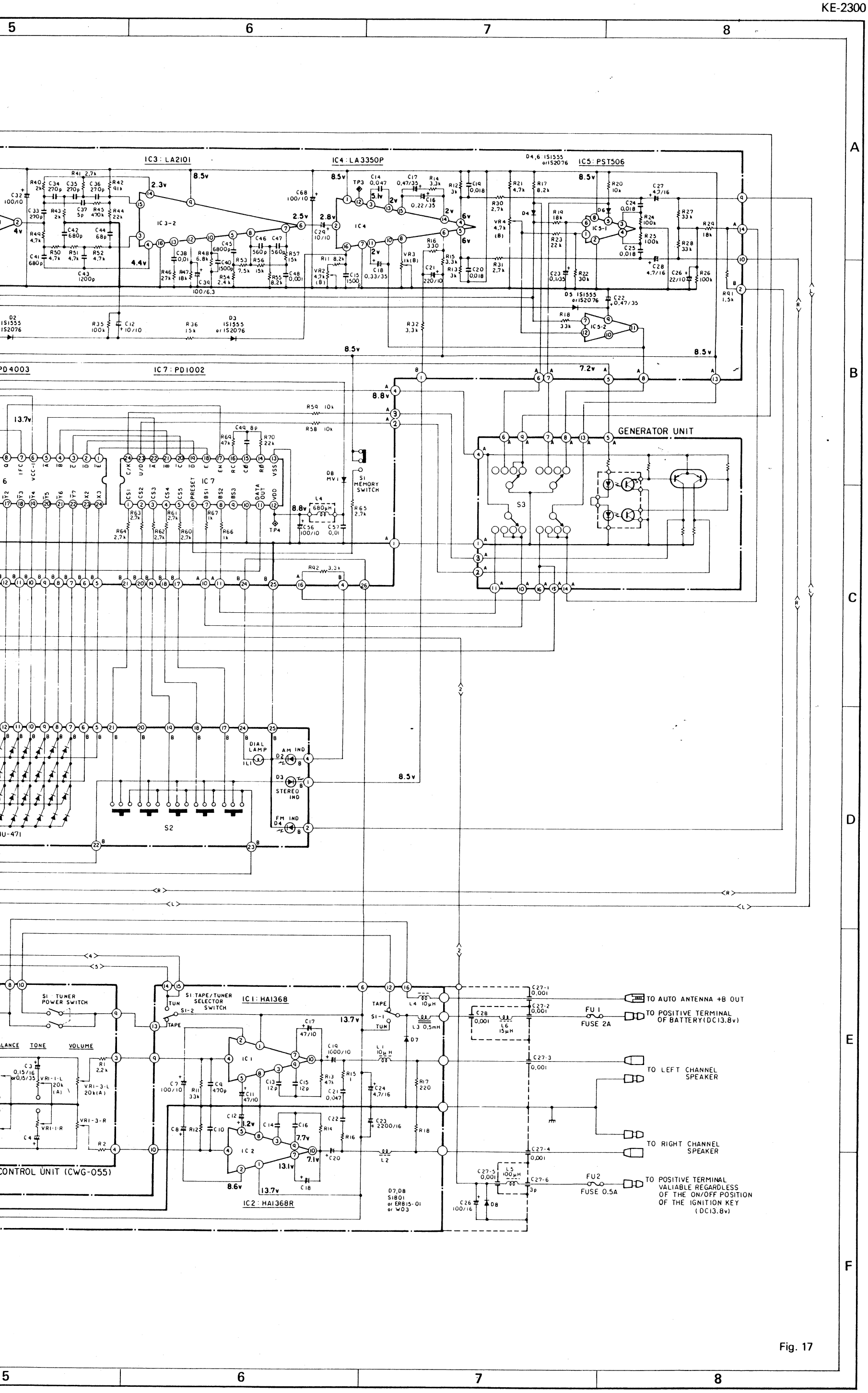
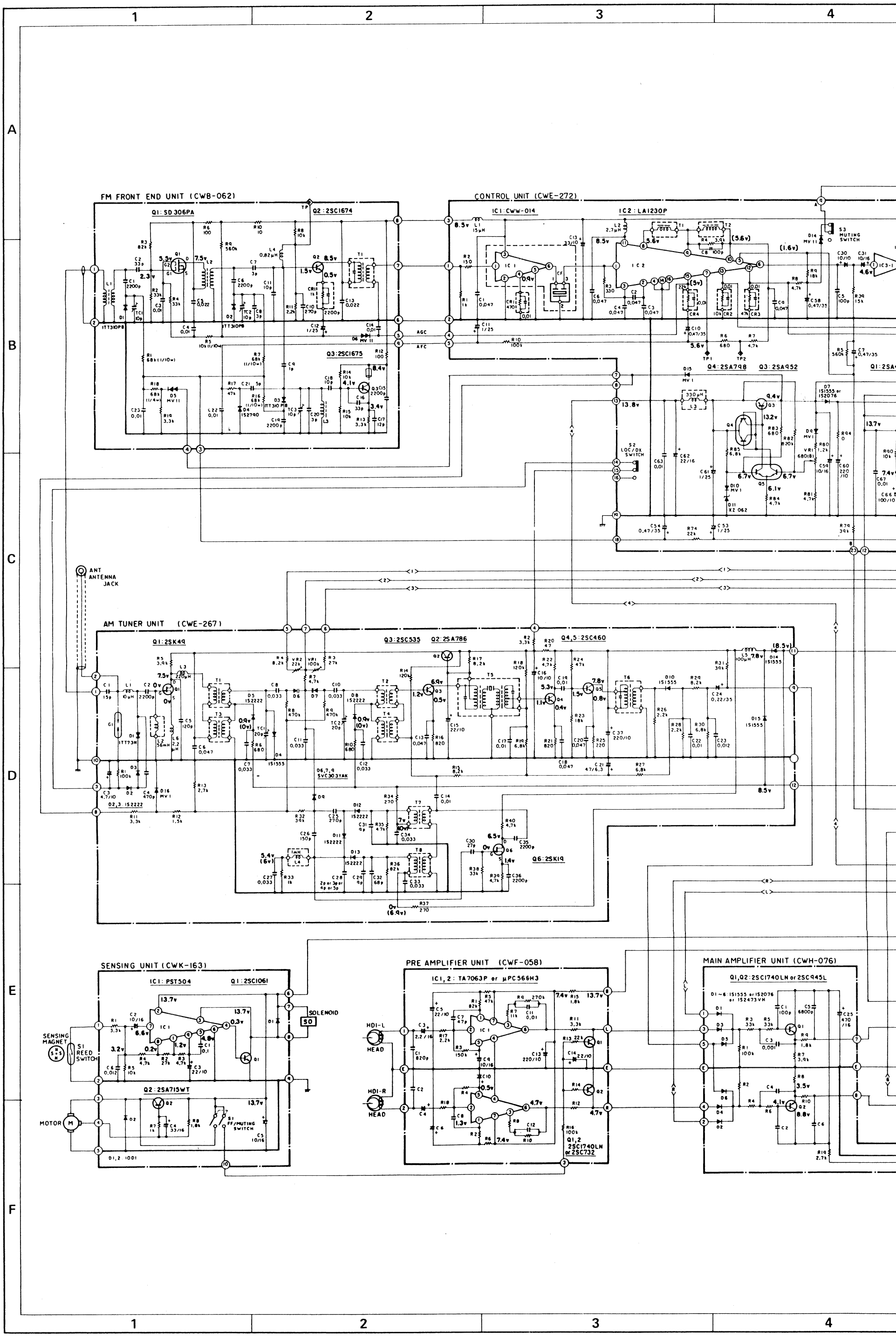
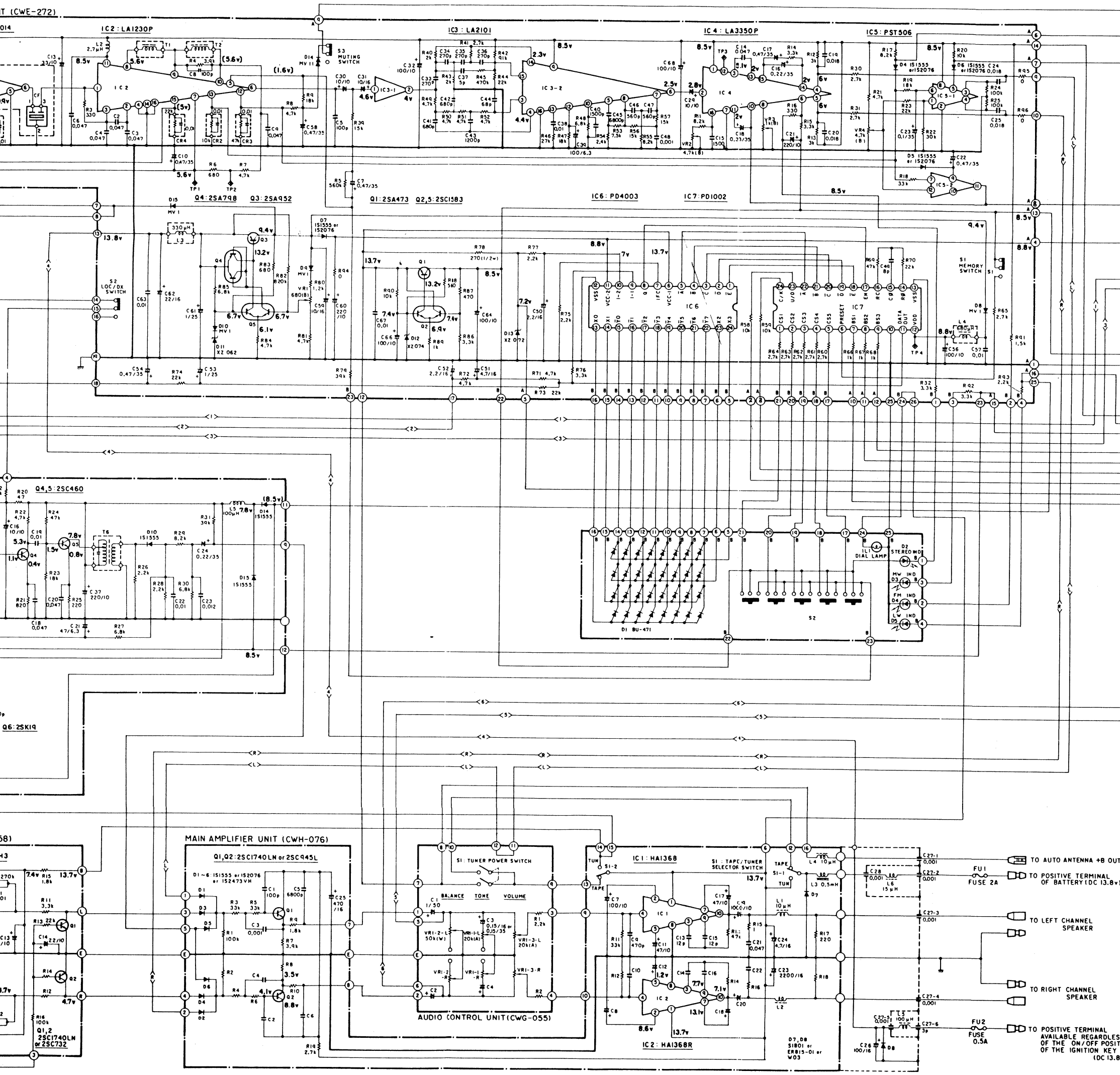

IC3 : LA2101
IC4 : LA3350P
D4,6 : IS1555 or IS2076
IC5 : PST506
IC7 : PD1002
PD4003
IC3-2
IC4
IC5-1
IC5-2
IC7
8.5v
2.3v
4.4v
2.5v
2.8v
5.1v
2v
6v
7.2v
8.8v
13.7v
R41 2.7k
R40 2k
C34 270p
C35 270p
C36 270p
R42 91k
C32 100/10
C33 270p
R43 2k
C37 5p
R45 470k
R44 22k
R49 4.7k
C42 680p
C44 68p
R50 4.7k
R51 4.7k
R52 4.7k
C41 680p
C43 1200p
C68 100/10
C38 0.01
R48 6.8k
C45 6800p
C46 560p
C47 560p
R57 15k
R46 27k
R47 18k
C39 100/6.3
C40 1500p
R53 7.5k
R56 15k
R54 2.4k
R55 8.2k
C48 0.001
C14 0.047
C17 0.47/35
R14 3.3k
C16 0.22/35
TP3
R12 3k
C19 0.018
R11 8.2k
VR2 4.7k (B)
C15 1500p
C18 0.33/35
VR3 1k(B)
R16 330
R15 3.3k
R13 3k
C21 220/10
C20 0.018
R21 4.7k
R17 8.2k
R30 2.7k
VR4 4.7k (B)
R31 2.7k
D4
R19 18k
R23 22k
C23 0.1/35
R22 30k
R20 10k
C24 0.018
R24 100k
R25 100k
C25 0.018
C27 4.7/16
R27 33k
R28 33k
C28 4.7/16
C26 22/10
R29 18k
R26 100k
RQ1 1.5k
D5 IS1555 or IS2076
C22 0.47/35
R18 33k
R32 3.3k
D2 IS1555 IS2076
R35 100k
C12 10/10
R36 15k
D3 IS1555 or IS2076
R59 10k
R58 10k
C49 8p
R69 47k
R70 22k
D8 MV1
S1 MEMORY SWITCH
R65 2.7k
L4 680µH
C56 100/10
C57 0.01
TP4
R63 2.7k
R64 2.7k
R61 2.7k
R62 2.7k
R60 2.7k
R67 1k
R66 1k
RQ2 3.3k
GENERATOR UNIT
S3
DIAL LAMP IL1
AM IND D2
D3 STEREO IND
FM IND D4
S2
U-471
SI : TUNER POWER SWITCH
SI : TAPE/TUNER SELECTOR SWITCH
SI-2
TUN
TAPE
SI-1
IC1 : HAI368
IC2 : HAI368R
BALANCE
TONE
VOLUME
VRI-1-L 20k (A)
VRI-3-L 20k(A)
VRI-1-R
VRI-3-R
R1 2.2k
R2
C3 0.15/16 or 0.15/35
C4
CONTROL UNIT (CWG-055)
C17 47/10
C19 1000/10
L1 10µH
C7 100/10
R11 33k
C9 470p
C11 47/10
R13 47k
R15 1
C13 12p
C15 12p
C21 0.047
C24 4.7/16
R17 220
C12 1.2v
C14
C16 7.7v
R14
C22
C23 2200/16
R18
C8
R12
C10
R16
C20
L2
7.1v
13.1v
8.6v
C18
D7,D8 SIB01 or ERB15-01 or W03
L4 10µH
L3 0.5mH
D7
C27-1 0.001
C27-2 0.001
C28 0.001
L6 15µH
C27-3 0.001
C27-4 0.001
C27-5 0.001
L5 100µH
C27-6 3p
C26 100/16
D8
FU1 FUSE 2A
FU2 FUSE 0.5A
TO AUTO ANTENNA +B OUT
TO POSITIVE TERMINAL OF BATTERY(DC13.8v)
TO LEFT CHANNEL SPEAKER
TO RIGHT CHANNEL SPEAKER
TO POSITIVE TERMINAL VALIABLE REGARDLESS OF THE ON/OFF POSITION OF THE IGNITION KEY (DC13.8v)

Fig. 17

5. SCHEMATIC CIRCUIT DIAGRAM (KE-2300)




IC2 : LA1230P
IC3 : LA2101
IC4 : LA3350P
IC5 : PST506
IC6 : PD4003
IC7 : PD1002
Q4 : 2SA798
Q3 : 2SA952
Q1 : 2SA473
Q2,5 : 2SC1583
Q4,5 : 2SC460
Q6 : 2SK19
S1 MEMORY SWITCH
S2 LOC/DX SWITCH
S3 MUTING SWITCH
D1 8U-471
MAIN AMPLIFIER UNIT (CWH-076)
Q1,Q2 : 2SC1740LN or 2SC945L
Q1,2 2SC1740LN or 2SC732
AUDIO CONTROL UNIT (CWG-055)
S1 : TUNER POWER SWITCH
S1 : TAPE/TUNER SELECTOR SWITCH
IC1 : HA1368
IC2 : HA1368R
BALANCE
TONE
VOLUME
TO AUTO ANTENNA +B OUT
TO POSITIVE TERMINAL OF BATTERY (DC 13.8v)
FUSE 2A
FU1
TO LEFT CHANNEL SPEAKER
TO RIGHT CHANNEL SPEAKER
TO POSITIVE TERMINAL AVAILABLE REGARDLESS OF THE ON/OFF POSITION OF THE IGNITION KEY (DC 13.8
FUSE 0.5A
FU2

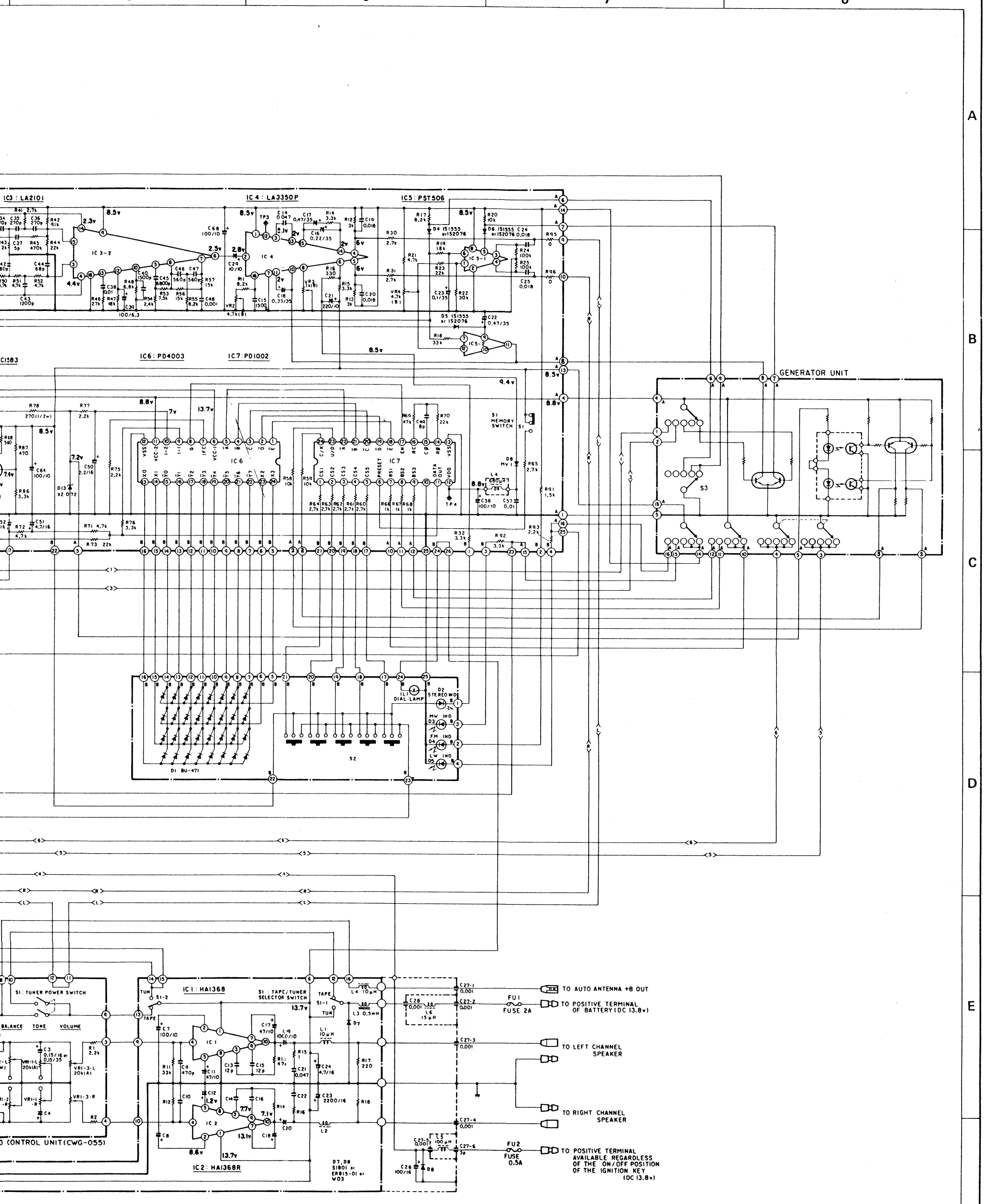

IC3 : LA2101
IC 4 : LA3350P
IC5 : PST506
IC 3-2
IC 4
IC 5-1
IC 5-2
IC6 : PD4003
IC7 : PD1002
IC6
IC7
GENERATOR UNIT
S1 MEMORY SWITCH
S3
D1 BU-471
S2
D2 STEREO IND
MW IND D3
FM IND D4
LW IND D5
D8 MV1
ILI DIAL LAMP
TP3
TP4
IC1 : HA1368
IC2 : HA1368R
IC 1
IC 2
S1 : TUNER POWER SWITCH
S1 : TAPE/TUNER SELECTOR SWITCH
S1-1
S1-2
TAPE
TUN
BALANCE
TONE
VOLUME
D7,D8 S1B01 or ER815-01 or W03
TO AUTO ANTENNA +B OUT
FU1
FUSE 2A
TO POSITIVE TERMINAL OF BATTERY (DC 13.8v)
TO LEFT CHANNEL SPEAKER
TO RIGHT CHANNEL SPEAKER
FU2
FUSE 0.5A
TO POSITIVE TERMINAL AVAILABLE REGARDLESS OF THE ON/OFF POSITION OF THE IGNITION KEY (DC 13.8v)
D CONTROL UNIT(CWG-055)

Fig. 18

SCHEMATIC CIRCUIT DIAGRAM

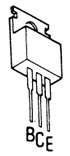
• IC's and Transistors

2SK49

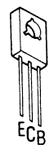
2SC1674
2SC1675
2SA952
2SC945L
2SC1740LN

2SC535
2SC460

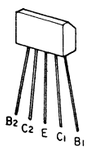
2SA473
2SC1061



2SA715WT



2SC1583
2SA798

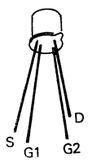


2SA786

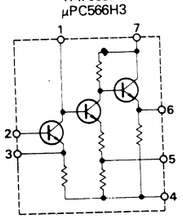
2SK19

2SC732

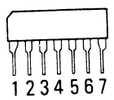
SD-306PA



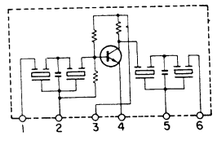
TA7063P
μPC566H3



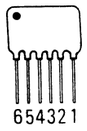
TA7063P
μPC566H3



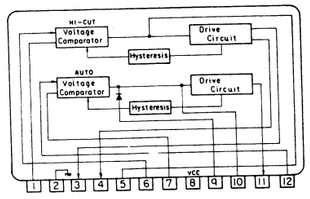
H8D1202



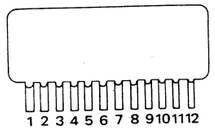
H8D1202



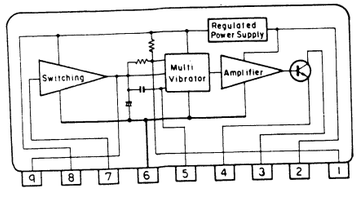
PST-506



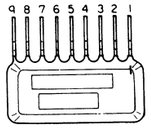
PST-506



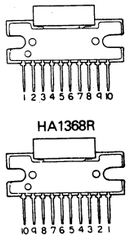
PST-504



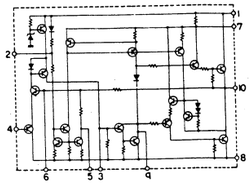
PST-504



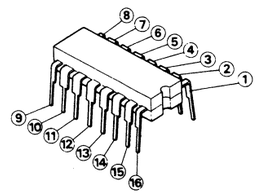
HA1368



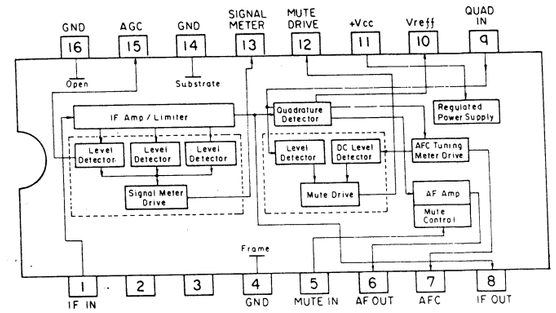
HA1368
HA1368R



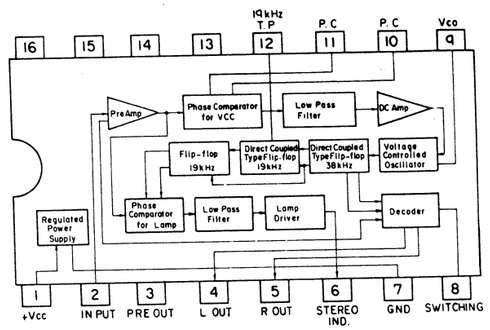
LA2101
LA3350P
LA1230P



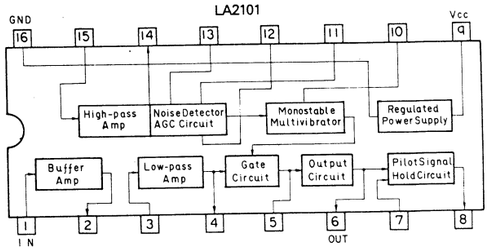
LA1230P



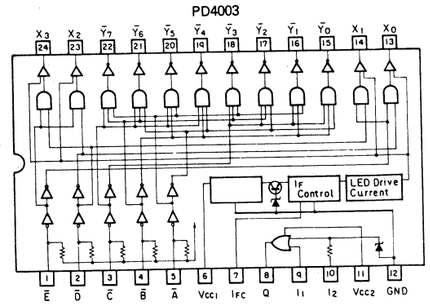
LA3350P



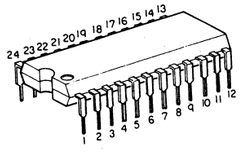
LA2101



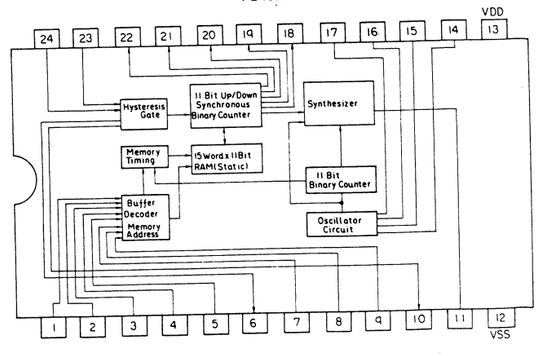
PD4003



PD1002
PD4003



PD1002


VDD
24 23 22 21 20 19 18 17 16 15 14 13
Hysteresis Gate
11 Bit Up/Down Synchronous Binary Counter
Synthesizer
Memory Timing
15 words x 11 Bit RAM (Static)
11 Bit Binary Counter
Buffer Decoder Memory Address
Oscillator Circuit
1 2 3 4 5 6 7 8 9 10 11 12
VSS

6. CONTROL UNIT (CWE-271)(KE-2000)

• Parts Connection

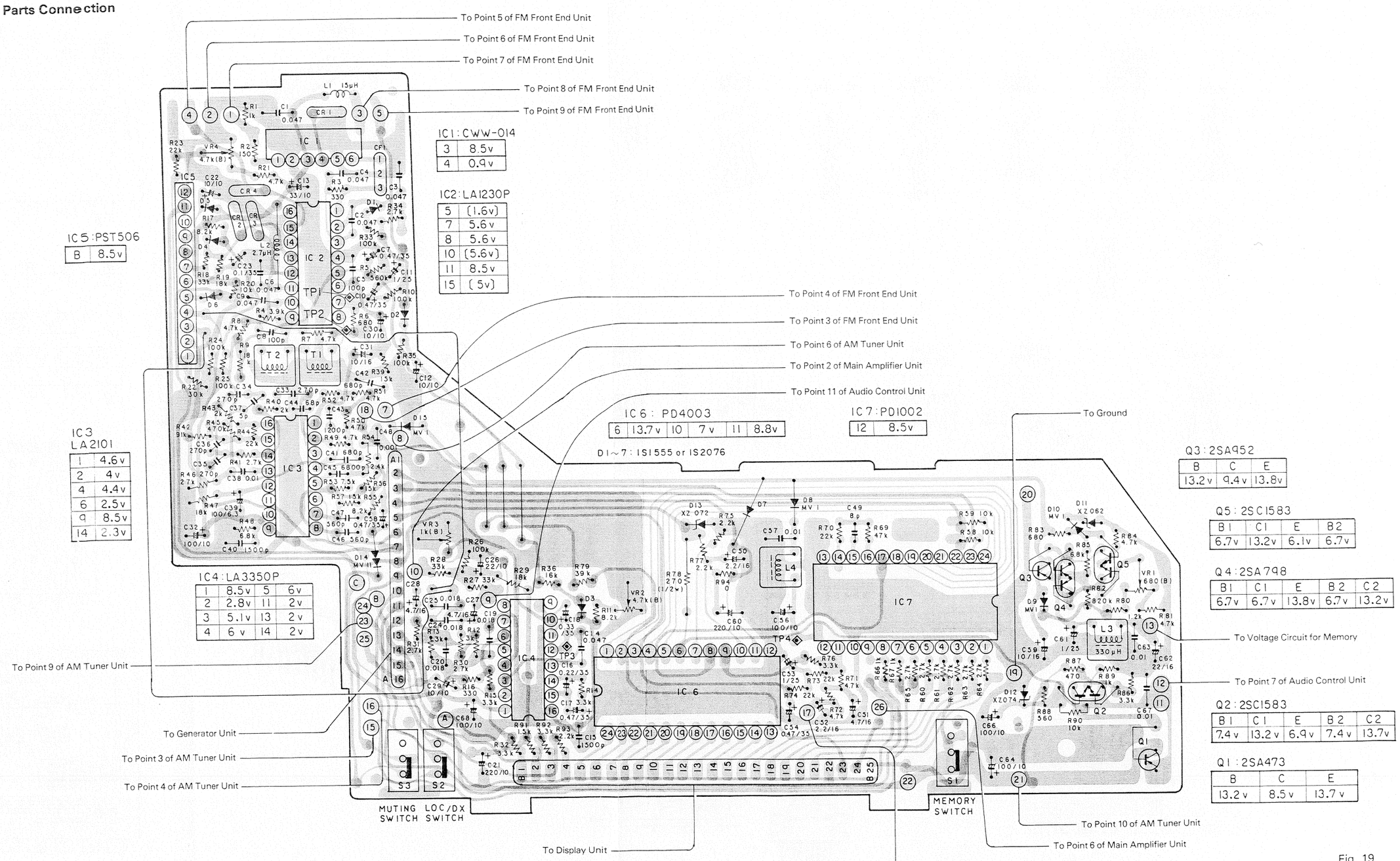
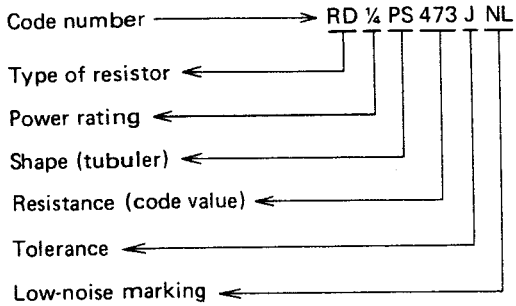

To Point 5 of FM Front End Unit
To Point 6 of FM Front End Unit
To Point 7 of FM Front End Unit
To Point 8 of FM Front End Unit
To Point 9 of FM Front End Unit
IC1 : CWW-014
3 8.5v
4 0.9v
IC2 : LA1230P
5 (1.6v)
7 5.6v
8 5.6v
10 (5.6v)
11 8.5v
15 (5v)
IC5 : PST506
B 8.5v
To Point 4 of FM Front End Unit
To Point 3 of FM Front End Unit
To Point 6 of AM Tuner Unit
To Point 2 of Main Amplifier Unit
To Point 11 of Audio Control Unit
IC6 : PD4003
6 13.7v 10 7v 11 8.8v
IC7 : PD1002
12 8.5v
D1~7 : IS1555 or IS2076
To Ground
IC3 LA2101
1 4.6v
2 4v
4 4.4v
6 2.5v
9 8.5v
14 2.3v
IC4 : LA3350P
1 8.5v 5 6v
2 2.8v 11 2v
3 5.1v 13 2v
4 6v 14 2v
Q3 : 2SA952
B C E
13.2v 9.4v 13.8v
Q5 : 2SC1583
B1 C1 E B2
6.7v 13.2v 6.1v 6.7v
Q4 : 2SA798
B1 C1 E B2 C2
6.7v 6.7v 13.8v 6.7v 13.2v
To Point 9 of AM Tuner Unit
To Voltage Circuit for Memory
To Point 7 of Audio Control Unit
Q2 : 2SC1583
B1 C1 E B2 C2
7.4v 13.2v 6.9v 7.4v 13.7v
Q1 : 2SA473
B C E
13.2v 8.5v 13.7v
To Generator Unit
To Point 3 of AM Tuner Unit
To Point 4 of AM Tuner Unit
MUTING SWITCH
LOC/DX SWITCH
MEMORY SWITCH
To Display Unit
To Point 10 of AM Tuner Unit
To Point 6 of Main Amplifier Unit
To Point 5 of AM tuner Unit

Fig. 19

RESISTANCE VALUE CODES

Code numbers of resistors used in Pioneer equipment are expressed in the following way:—



Furthermore, in the list of parts found in the Service Manual, the resistance (code value) part of the above code number is expressed as □□□ or □□□□.

Resistors included in the Service Manual list of parts

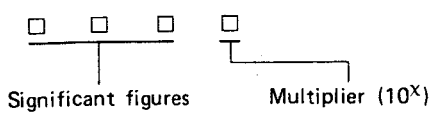
Ex. RD ¼ PS □□□ J NL

When ordering resistor components, first ascertain the actual resistance value from the circuit diagram, and then convert it into code no. form as shown in the following examples.

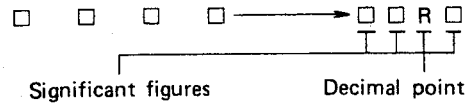
For further details on code numbers, refer to "Tuning Fork" VOL. 1.

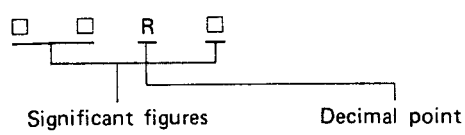
Ex. 1 For □□□□ Codes

* **General resistors**



* **Resistors with fractional values**



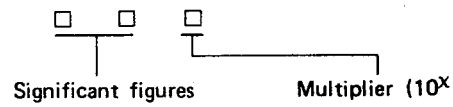


Ex. 1

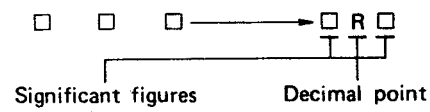
Nominal resistance (Ω)	Significant figure (two figures)	Multiplier (10X)	Resistance value code
5.1	510	.....	5R10
5.62	562	.....	5R62
10	100	.....	10R0
22.5	225	.....	22R5
110	110	$\times 10^0$	1100
1k (1000)	100	$\times 10^1$	1001
1.56k (1560)	156	$\times 10^1$	1561
10k (10000)	100	$\times 10^2$	1002
33.6k (33600)	336	$\times 10^2$	3362
112k (112000)	112	$\times 10^3$	1123
1M (1000000)	100	$\times 10^4$	1004
1.56M (1560000)	156	$\times 10^4$	1564

Ex. 2 For □□□ Codes

* **General resistors**



* **Resistors with fractional values**

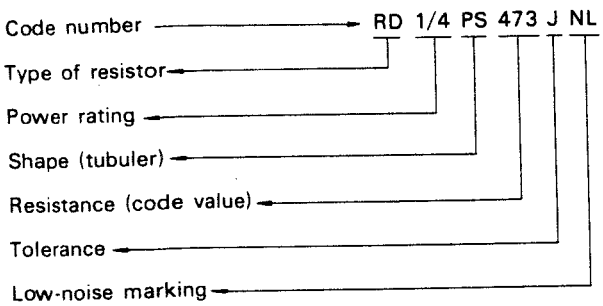


Ex. 2

Nominal resistance (Ω)	Significant figure (two figures)	Multiplier (10X)	Resistance value code
0.5	01	.....	0R5
1.5	15	.....	1R5
1	01	$\times 10^0$	010
22	22	$\times 10^0$	220
330	33	$\times 10^1$	331
1k (1000)	10	$\times 10^2$	102
5.6k (5600)	56	$\times 10^3$	562
68k (68000)	68	$\times 10^3$	683
820k (820000)	82	$\times 10^4$	824
1M (1000000)	10	$\times 10^5$	105
2.2M (2200000)	22	$\times 10^5$	225

RESISTANCE VALUE CODES

Code numbers of resistors used in Pioneer equipment are expressed in the following way:



Furthermore, in the list of parts found in the Service Manual, the resistance (code value) part of the above code number is expressed as □□□ or □□□□.

Resistors included in the Service Manual list of parts

↓

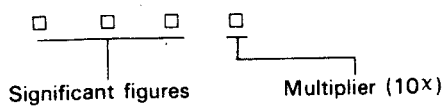
Ex. RD 1/4 PS □□□ JNL

When ordering resistor components, first ascertain the actual resistance value from the circuit diagram, and then convert it into code no. from as shown in the following examples.

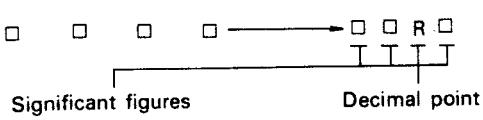
For further details on code numbers, refer to "Tuning Fork" VOL. 1.

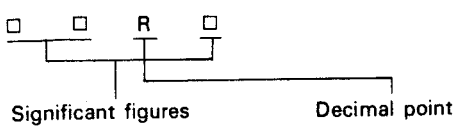
Ex. 1 For □□□□ Codes

*** General resistors**



*** Resistors with fractional values**



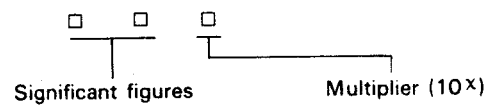


Ex. 1

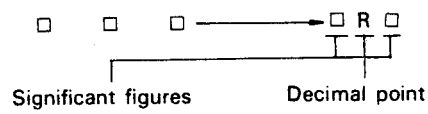
Nominal resistance (Ω)	Significant figure (three figures)	Multiplier (10X)	Resistance value code
5.1	510	.....	5R10
5.62	562	.....	5R62
10	100	.....	10R0
22.5	225	.....	22R5
110	110	$\times 10^0$	1100
1k (1000)	100	$\times 10^1$	1001
1.56k (1560)	156	$\times 10^1$	1561
10k (10000)	100	$\times 10^2$	1002
33.6k (33600)	336	$\times 10^2$	3362
112k (112000)	112	$\times 10^3$	1123
1M (1000000)	100	$\times 10^4$	1004
1.56M (1560000)	156	$\times 10^4$	1564

Ex. 2 For □□□ Codes

*** General resistors**



*** Resistors with fractional values**



Ex. 2

Nominal resistance (Ω)	Significant figure (two figures)	Multiplier (10X)	Resistance value code
0.5	05	.....	0R5
1.5	15	.....	1R5
1	01	$\times 10^0$	010
22	22	$\times 10^0$	220
330	33	$\times 10^1$	331
1k (1000)	10	$\times 10^2$	102
5.6k (5600)	56	$\times 10^2$	562
68k (68000)	68	$\times 10^3$	683
820k (820000)	82	$\times 10^4$	824
1M (1000000)	10	$\times 10^5$	105
2.2M (2200000)	22	$\times 10^5$	225

• Parts List

NOTE:
When ordering resistors, first covert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56×10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47×10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562×10¹*		*RN1/4SR 5 6 2 1 F*

MISCELLANEOUS

Part No.	Symbol & Description	
CWW-014	IC1 (IC & Ceramic Filter)	
LA1230P	IC2	
LA2101	IC3	
LA3350P	IC4	
PST-506	IC5	
PD4003	IC6	
PD1002	IC7	
2SA473-O	Q1	
2SC1583	Q2, Q5	
2SA952	Q3	
2SA798	Q4	
1S1555 or 1S2076	D1-D7	
MV-1	D8-D10, D15	
MV-11	D14	
XZ-062	D11	
XZ-072	D13	
YZ-074	D12	
CTF-016	L1	Ferri-Inductor, 15μH
CTF-039	L2	Ferrie-Inductor, 2.7μH
CTC-106	L3	Coil, 330μH
CTC-094	L4	Coil, 680μH
CTC-108	T1	Coil
CTC-109	T2	Coil
CWW-026	CR1	470Ω/0.01μF
CWW-031	CR2	10kΩ/0.01μF
CWW-033	CR3	47kΩ/0.01μF
CWW-032	CR4	22kΩ/0.01μF
CCP-051	VR1	
C92-618	VR2	
C92-617	VR3	
CCP-104	VR4	
CSG-122	S1	
CSG-121	S2, S3	

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
RD1/4VS□□□J	R1-R5, R7-R9, R11-R16, R18-R22, R24-R36, R39-R70, R75-R77, R79, R82-R92	
RD1/4PS□□□J	R6, R10, R17	
CCN-060	R23	22kΩ
CCN-052	R71,R72,R81	4.7kΩ
CCN-036	R73, R74	22kΩ
CCN-034	R80	1.2kΩ
CCN-056	R94	0Ω

CAPACITORS

Part No.	Symbol & Description
CKDYF473Z25	C1-C4, C6, C9
CCDSL101K50	C5
CSZAR47M35	C7, C10, C17, C22, C54, C58
CCDRH101J50	C8
CSZA010M25	C11, C53, C61
CSZA100M10	C12, C29, C30
CEA330P10	C13
CQMA473K50	C14
CQSA152J50	C15
CSZAR22M35	C16
CSZAR33M35	C18
CQMA183K50	C19, C20, C24, C25
CSZA0R1M35	C23
CEA220P10L	C26
CSZA4R7M16	C27, C28
CSZA100M10	C29, C30
CEA100P16	C31, C59
CEA101P10L	C32, C56, C64, C66, C68
CKDSA271J50	C33-C36
CCDSL050D50	C37
CQMA103K50	C38
CEA101P6R3	C39
CQMA152J50	C40
CKDSA681J50	C41, C42
CQMA122K50	C43
CKDSA680J50	C44
CQMA682J50	C45
CKDSA561J50	C46, C47
CKDSA102J50	C48
CCDCH080D50	C49
CSZA2R2M16	C50
CSZA4R7M16	C51
CSZA2R2M16	C52
CKDYD103M50	C57, C63, C67
CCH-028	C21, C60 220μF/10V
CEA220P16	C62

7. AUDIO CONTROL UNIT (CWG-055)

• Parts Connection

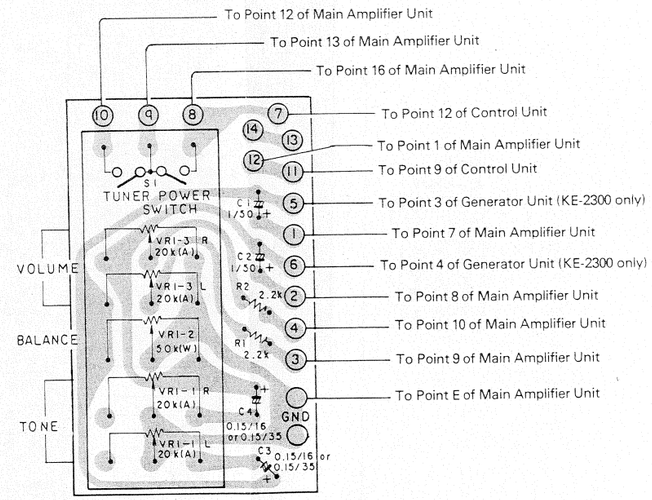

To Point 12 of Main Amplifier Unit
To Point 13 of Main Amplifier Unit
To Point 16 of Main Amplifier Unit
To Point 12 of Control Unit
To Point 1 of Main Amplifier Unit
To Point 9 of Control Unit
To Point 3 of Generator Unit (KE-2300 only)
To Point 7 of Main Amplifier Unit
To Point 4 of Generator Unit (KE-2300 only)
To Point 8 of Main Amplifier Unit
To Point 10 of Main Amplifier Unit
To Point 9 of Main Amplifier Unit
To Point E of Main Amplifier Unit
S1
TUNER POWER SWITCH
VOLUME
BALANCE
TONE
VR1-3 R 20k(A)
VR1-3 L 20k(A)
VR1-2 50k(W)
VR1-1 R 20k(A)
VR1-1 L 20k(A)
C1 1/50
C2 1/50
R2 2.2k
R1 2.2k
C4 0.15/16 or 0.15/35
C3 0.15/16 or 0.15/35
GND

Fig. 20

• Parts List

Part No.	Symbol & Description
CCS-200	VR1
RD1/4VS222J	R1, R2
CEA010P50	C1, C2
CSYAR15M16 or CSZAR15M35	C3, C4

• **Parts Connection**

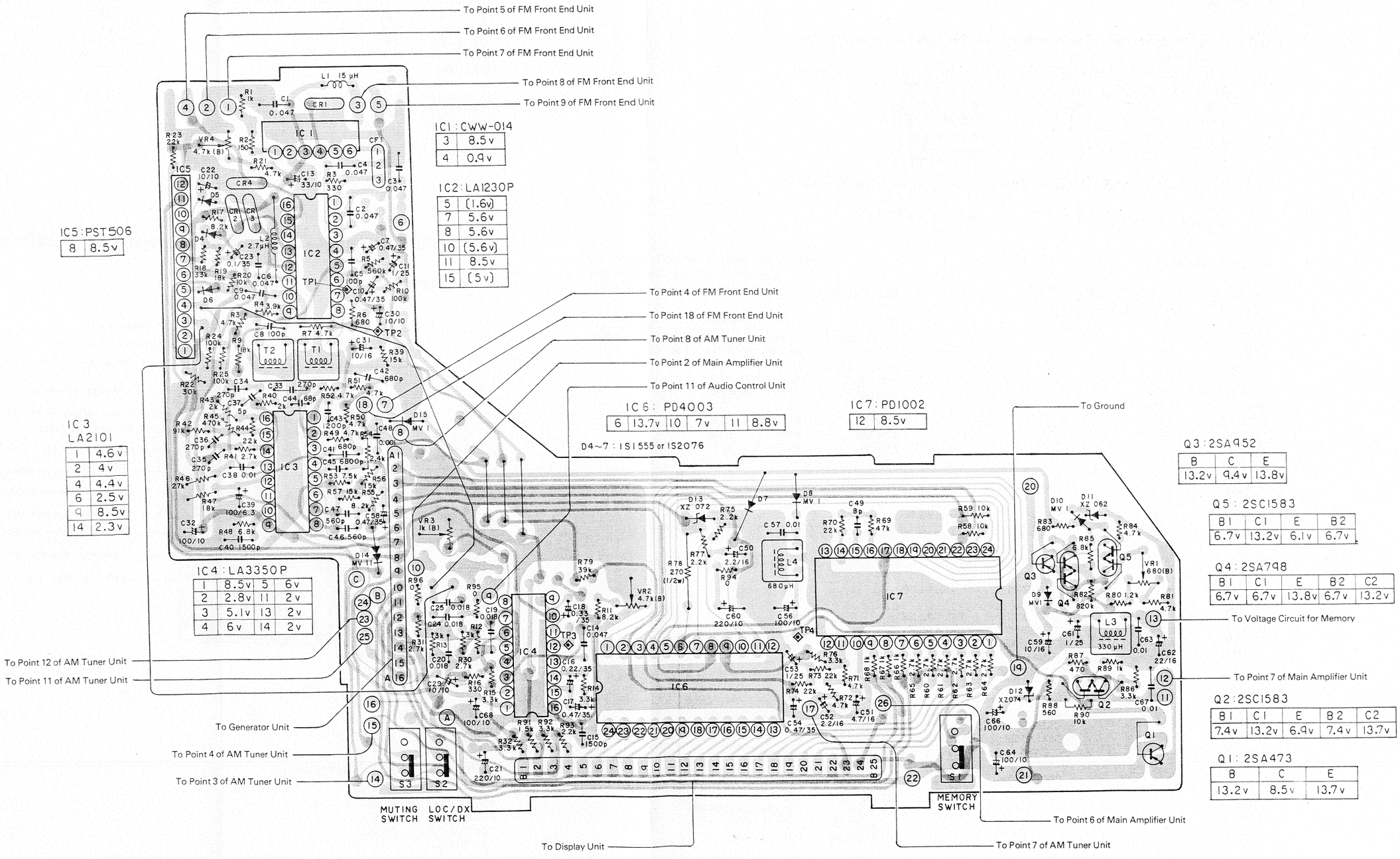

To Point 5 of FM Front End Unit
To Point 6 of FM Front End Unit
To Point 7 of FM Front End Unit
To Point 8 of FM Front End Unit
To Point 9 of FM Front End Unit
IC1 : CWW-014
3 8.5v
4 0.9v
IC2 : LA1230P
5 (1.6v)
7 5.6v
8 5.6v
10 (5.6v)
11 8.5v
15 (5v)
IC5 : PST506
8 8.5v
To Point 4 of FM Front End Unit
To Point 18 of FM Front End Unit
To Point 8 of AM Tuner Unit
To Point 2 of Main Amplifier Unit
To Point 11 of Audio Control Unit
IC6 : PD4003
6 13.7v 10 7v 11 8.8v
IC7 : PD1002
12 8.5v
To Ground
D4~7 : 1S1555 or 1S2076
Q3 : 2SA952
B C E
13.2v 9.4v 13.8v
Q5 : 2SC1583
B1 C1 E B2
6.7v 13.2v 6.1v 6.7v
Q4 : 2SA798
B1 C1 E B2 C2
6.7v 6.7v 13.8v 6.7v 13.2v
To Voltage Circuit for Memory
To Point 7 of Main Amplifier Unit
Q2 : 2SC1583
B1 C1 E B2 C2
7.4v 13.2v 6.9v 7.4v 13.7v
Q1 : 2SA473
B C E
13.2v 8.5v 13.7v
IC3
LA2101
1 4.6v
2 4v
4 4.4v
6 2.5v
9 8.5v
14 2.3v
IC4 : LA3350P
1 8.5v 5 6v
2 2.8v 11 2v
3 5.1v 13 2v
4 6v 14 2v
To Point 12 of AM Tuner Unit
To Point 11 of AM Tuner Unit
To Generator Unit
To Point 4 of AM Tuner Unit
To Point 3 of AM Tuner Unit
MUTING SWITCH
LOC/DX SWITCH
MEMORY SWITCH
To Display Unit
To Point 6 of Main Amplifier Unit
To Point 7 of AM Tuner Unit

Fig. 21

• Parts List

MISCELLANEOUS

Part No.	Symbol & Description	
CWW-014	IC1 (IC & Ceramic Filter)	
LA1230P	IC2	
LA2101	IC3	
LA3350P	IC4	
PST506	IC5	
PD4003	IC6	
PD1002	IC7	
2SA473-O	Q1	
2SC1583	Q2, Q5	
2SA952	Q3	
2SA798	Q4	
1S1555 or 1S2076	D4-D7	
MV1	D8-D10, D15	
MV11	D14	
XZ062	D11	
XZ072	D13	
YZ074	D12	
CTF-016	L1	Ferri-Inductor, 15μH
CTF-039	L2	Ferrie-Inductor, 2.7μH
CTC-106	L3	Coil, 330μH
CTC-094	L4	Coil, 680μH
CTC-108	T1	Coil
CTC-109	T2	Coil
CWW-026	CR1	470Ω/0.01μF
CWW-031	CR2	10kΩ/0.01μF
CWW-033	CR3	47kΩ/0.01μF
CWW-032	CR4	22kΩ/0.01μF
CCP-051	VR1	Volume
C92-618	VR2	Volume
C92-617	VR3	Volume
CCP-104	VR4	Volume
CSG-122	S1	Switch
CSG-121	S2, S3	Switch

CAPACITORS

Part No.	Symbol & Description
CKDYF473Z25	C1-C4, C6, C9
CCDSL101K50	C5
CSZAR47M35	C7, C10, C17, C22, C54, C58
CCDRH101J50	C8
CSZA010M25	C11, C53, C61
CEA330P10	C13
CQMA473K50	C14
CQSA152J50	C15
CSZAR22M35	C16
CSZAR33M35	C18
CQMA183K50	C19, C20, C24, C25
CSZA0R1M35	C23
CSZA100M10	C29, C30
CEA100P16	C31, C59
CEA101P10L	C32, C56, C64, C66, C68
CKDSA271J50	C33-C36
CCDSL050D50	C37
CQMA103K50	C38
CEA101P6R3	C39
CQMA152J50	C40
CKDSA681J50	C41, C42
CQMA122K50	C43
CKDSA680J50	C44
CQMA682J50	C45
CKDSA561J50	C46, C47
CKDSA102J50	C48
CCDCH080D50	C49
CSZA2R2M16	C50
CSZA4R7M16	C51
CSZA2R2M16	C52
CKDYD103M50	C57, C63, C67
CCH-028	C21, C60 220μF/□V
CEA220P16	C62

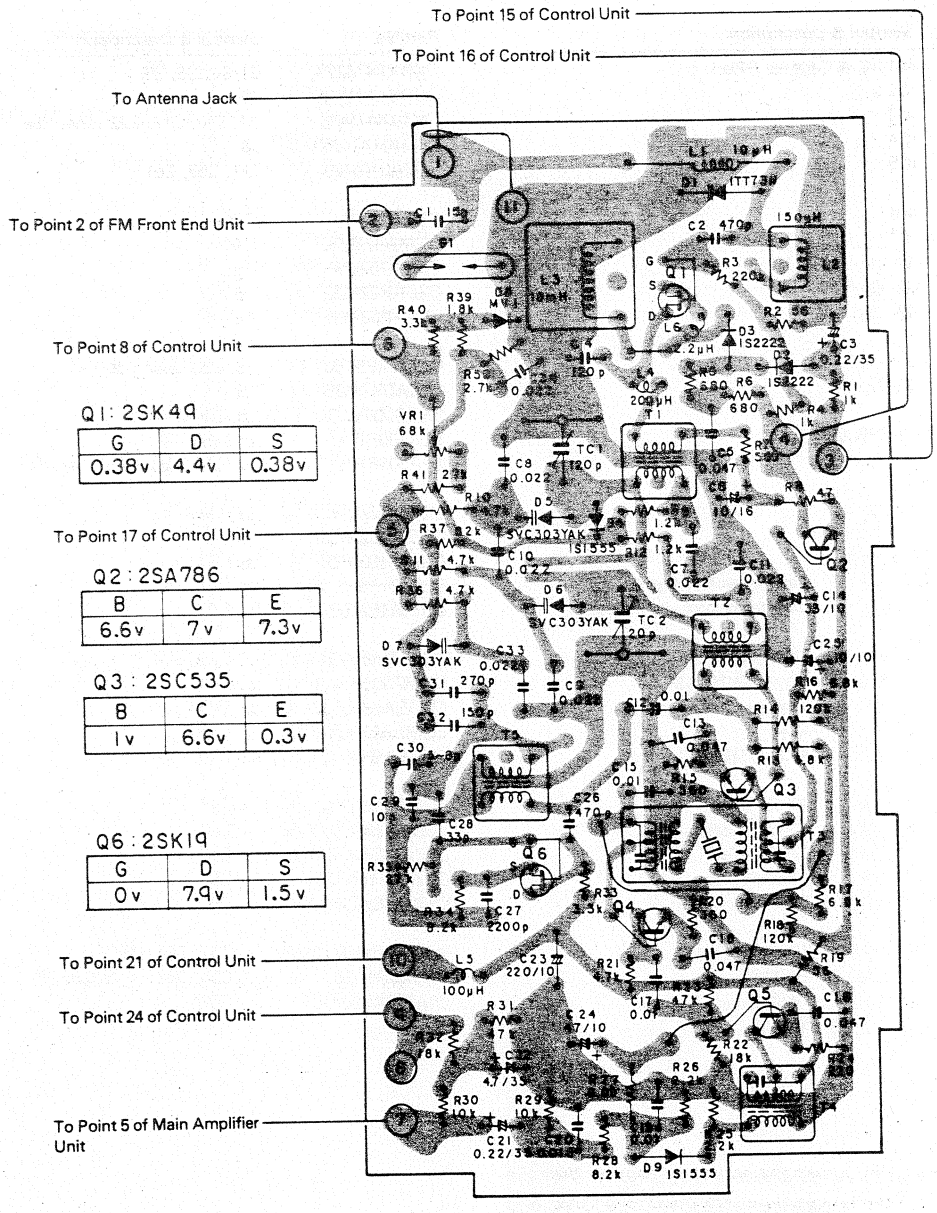
Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
RD¼VS□□□J	R1-R5, R7-R9, R11-R16, R18-R22, R24, R25, R30-R32, R39-R70, R75-R77, R79, R82-R93	
RD¼PS□□□J	R6, R10, R17	
CCN-060	R23	22kΩ
CCN-052	R71,R72,R81	4.7kΩ
CCN-036	R73, R74	22kΩ
RD½PS□□□J	R78	
CCN-034	R80	1.2kΩ
CCN-056	R94-R96	0Ω

9. AM TUNER UNIT (CWE-268) (KE-2000)

- **Parts Connection**


To Point 15 of Control Unit
To Point 16 of Control Unit
To Antenna Jack
To Point 2 of FM Front End Unit
To Point 8 of Control Unit
To Point 17 of Control Unit
To Point 21 of Control Unit
To Point 24 of Control Unit
To Point 5 of Main Amplifier Unit

Q1 : 2SK49

G	D	S
0.38v	4.4v	0.38v

Q2 : 2SA786

B	C	E
6.6v	7v	7.3v

Q3 : 2SC535

B	C	E
1v	6.6v	0.3v

Q6 : 2SK19

G	D	S
0v	7.9v	1.5v

Q4 : 2SC460

B	C	E
1v	5.6v	0.3v

Q5 : 2SC460

B	C	E
1.7v	8.5v	1v

Fig. 22

• Parts List

MISCELLANEOUS

Part No.	Symbol & Description	
2SK49-H2	Q1	
2SA786-R	Q2	
2SC535-B	Q3	
2SC460-B	Q4, Q5	
2SK19-Y	Q6	
ITT73N	D1	
1S2222	D2, D3	
1S1555	D4, D9	
SVC303YAK	*D5-D7	
MV-1	D8	
CTB-068	L1	Coil 10μH
CTC-058	L2	Coil 150μH
CTH-049 or	L3	Coil
CTH-057		Coil 18μH
CTB-070	L4	Coil 220μH
T24-030	L5	Ferri-Inductor 100μH
CTB-081	L6	Coil 2.2μH
CTB-078	T1	Coil
CTB-073	T2	Coil
CTE-037	T3	IF Transformer
CTB-075	T4	Coil
CTB-080	T5	Coil
CCP-063	VR1	Volume
C43-607	TC1, TC2	Ceramic Trimmer
CCX-006	G1	Lightning Piece

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
RD¼VS□□□J	R1-R20, R24, R25, R27, R29-R40	
RD⅛VS□□□J	R21-R23, R26	
RD¼PS□□□J	R28	
CCN-054	R41	27kΩ

CAPACITORS

Part No.	Symbol & Description	
CCDSL150K500L	C1	
CKDYB471K50	C2, C26	
CSZAR22M35	C3, C21	
CKDYB121K50	C4	
CKDBC473M25	C5, C13, C16, C18	
CEA100P16	C6	
CQMA223J50	C7-C11, C33, C34	
CKDYB103M50	C12	
CEA330P10	C14	
CKDYF103Z25	C15, C17	
CQMA103M50	C19	
CQMA183M50	C20	
CEA4R7P35	C22	
CCH-028	C23	220μF/10V
CEA470P10	C24	
CSZA100M16	C25	
CKDYB222K50	C27	
CCDVK330J50	C28	
CCDWK100J50	C29	
CCDCH050C50 or	*C30	
CCDCH060C50 or		
CCDCH070C50 or		
CCDCH080C50		
CCDPH271J50L	C31	
CCDPH151J50L	C32	

Caution:
Diodes D5-D7 and capacitor C30 used mutually in the following assembly.

D5-D7	C30
SVC303YAK-25	CCDCH050C50
SVC303YAK-24	CCDCH060C50
SVC303YAK-23	CCDCH070C50
SVC303YAK-22	CCDCH080C50

10. AM TUNER UNIT (CWE-267) (KE-2300)

- **Parts Connection**

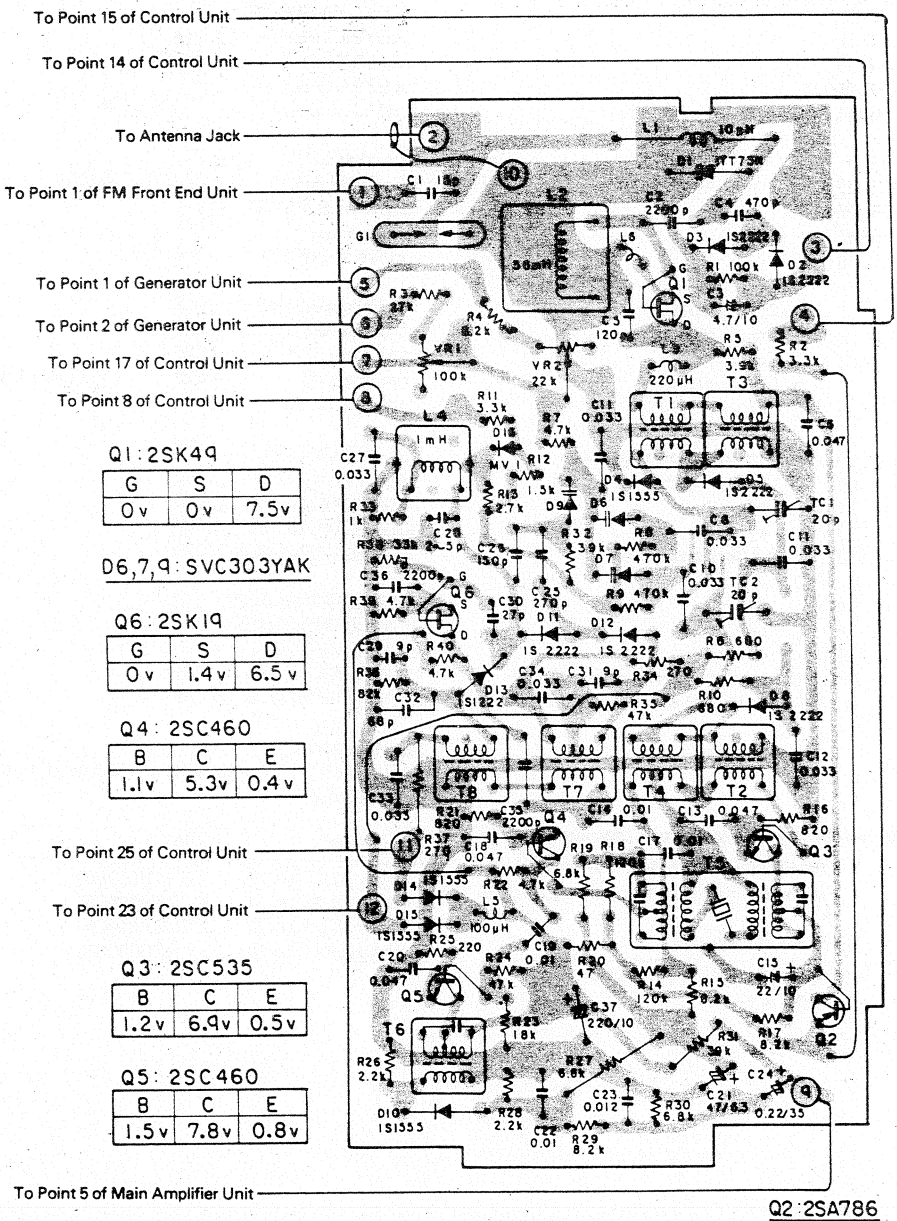

To Point 15 of Control Unit
To Point 14 of Control Unit
To Antenna Jack
To Point 1 of FM Front End Unit
To Point 1 of Generator Unit
To Point 2 of Generator Unit
To Point 17 of Control Unit
To Point 8 of Control Unit
To Point 25 of Control Unit
To Point 23 of Control Unit
To Point 5 of Main Amplifier Unit
Q1 : 2SK49
G S D
0v 0v 7.5v
D6,7,9 : SVC303YAK
Q6 : 2SK19
G S D
0v 1.4v 6.5v
Q4 : 2SC460
B C E
1.1v 5.3v 0.4v
Q3 : 2SC535
B C E
1.2v 6.9v 0.5v
Q5 : 2SC460
B C E
1.5v 7.8v 0.8v
Q2 : 2SA786

Fig. 23

• Parts List

MISCELLANEOUS

Part No.	Symbol & Description	
2SK49-H2	Q1	
2SA786-R	Q2	
2SC535-B	Q3	
2SC460-B	Q4, Q5	
2SK19-Y	Q6	
ITT73N	D1	
1S2222	D2, D3, D5, D8, D11-D13	
1S1555	D4, D10, D14, D15	
SVC303YAK	*D6, D7, D9	
MV1	D16	
CTB-068	L1	Coil 10μH
CTB-069	L2	Coil 56mH
CTB-070	L3	Coil 220μH
CTB-071	L4	Coil 1mH
T24-030	L5	Ferri-Inductor 100μH
CTB-081	L6	Coil 2.2μH
CTB-072	T1	Coil
CTB-073	T2	Coil
CTB-074	T3, T4	Coil
CTE-037	T5	IF Transformer
CTB-075	T6	Coil
CTB-080	T7	Coil
CTB-077	T8	Coil
CCG-030	TC1, TC2	Ceramic Trimmer
CCP-081	VR1	Volume
CCP-064	VR2	Volume
CCX-006	G1	Lightning Piece

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
RD¼VS□□□J	R1, R2, R5-R28, R30-R40	
CCN-054	R3	27k
CCN-055	R4	8.2k
RD¼PS□□□J	R29	

CAPACITORS

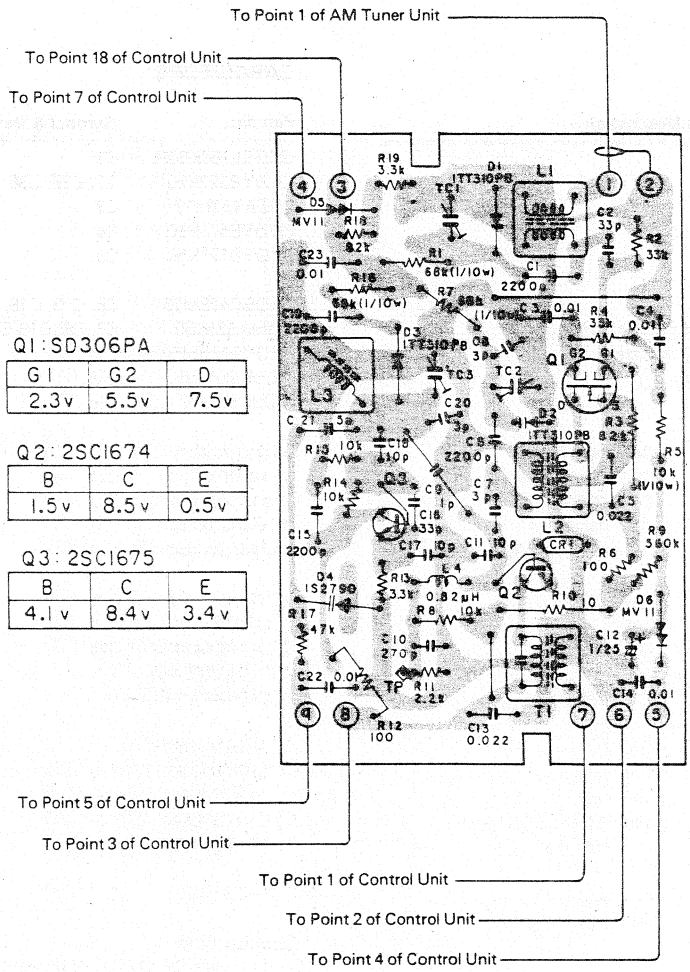
Part No.	Symbol & Description	
CCDSL150K500L	C1	
CKDYB222K50	C2, C35, C36	
CSZA4R7M10	C3	
CKDYB471K50	C4	
CKDYB121K50	C5	
CKDBC473M25	C6, C13, C18, C20	
CQMA333K50	C7, C8, C10-C12, C27, C33, C34	
CKDYD103M50	C14	
CSZA220M10	C15	
CSZA100M10	C16	
CKDYF103Z25	C17, C19	
CEA470P6.3	C21	
CQMA103M50	C22	
CQMA123M50	C23	
CSZAR22M35	C24	
CCDPH271J50L	C25	
CCDPH151J50L	C26	
CCDCH020C50 or	*C28	
CCDCH030C50 or		
CCDCH040C50 or		
CCDCH050C50		
CCDPH090D50	C29	
CCDXK270J50	C30	
CCDXK090D50	C31	
CCDPH680J50	C32	
CCH-028	C37	220μF/10V

Caution:
Diodes D6, D7, D9 and capacitor C28 used mutually in the following assembly.

D6, D7, D9	C28
SVC303YAK-25	CCDCH020C50
SVC303YAK-24	CCDCH030C50
SVC303YAK-23	CCDCH040C50
SVC303YAK-22	CCDCH050C50

11. FM FRONT END UNIT (CWB-061) (KE-2000)

- **Parts Connection**


To Point 1 of AM Tuner Unit
To Point 18 of Control Unit
To Point 7 of Control Unit
To Point 5 of Control Unit
To Point 3 of Control Unit
To Point 1 of Control Unit
To Point 2 of Control Unit
To Point 4 of Control Unit

Q1 : SD306PA

G1	G2	D
2.3v	5.5v	7.5v

Q2 : 2SC1674

B	C	E
1.5v	8.5v	0.5v

Q3 : 2SC1675

B	C	E
4.1v	8.4v	3.4v

Fig. 24

- **Parts List**

MISCELLANEOUS

Part No.	Symbol & Description	
SD306PA	Q1	
2SC1674	Q2	
2SC1675-M	Q3	
ITT310PC, PD	D1-D3	
1S2790	D4	
MV-11	D5, D6	
CTC-107	L1	
CTC-092	L2	
CTC-093	L3	
CTF-015	L4	0.82μH
CTC-043	T1	
CCG-038	TC1-TC3	
CCX-001	CR1	1kΩ/2200pF
CTX-022	Beaded Core	

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
CCN-041	R1, R7, R16	68kΩ/1/10W
RD1/4VS□□□J	R2, R6, R8, R11-R15	
RD1/8PS□□□J	R3, R10	
CCN-040	R4	33kΩ
CCN-007	R5	10kΩ/1/10W
CCN-059	R9	560kΩ
CCN-058	R17	47kΩ
CCN-037	R18	82kΩ/1/4W
CCN-057	R19	3.3kΩ

CAPACITORS

Part No.	Symbol & Description
CKDYA222K50	C1, C6, C15, C19
CCDSL330J50	C2
CKDYF103Z25	C3, C4, C14, C22, C23
CKDYF223Z25	C5, C13
CCDCH030D50	C7
CCDSH030D50	C8
CGB010K500	C9
CKDYB271K50	C10
CCDCH100F50	C11
CSZA010M25	C12
CCDSH330J50	C16
CCDTH100J50	C17
CCDRH100F50	C18
CCDTH030D50	C20
CCDTH050D50	C21

12. FM FRONT END UNIT (CWB-062) (KE-2300)

• Parts Connection

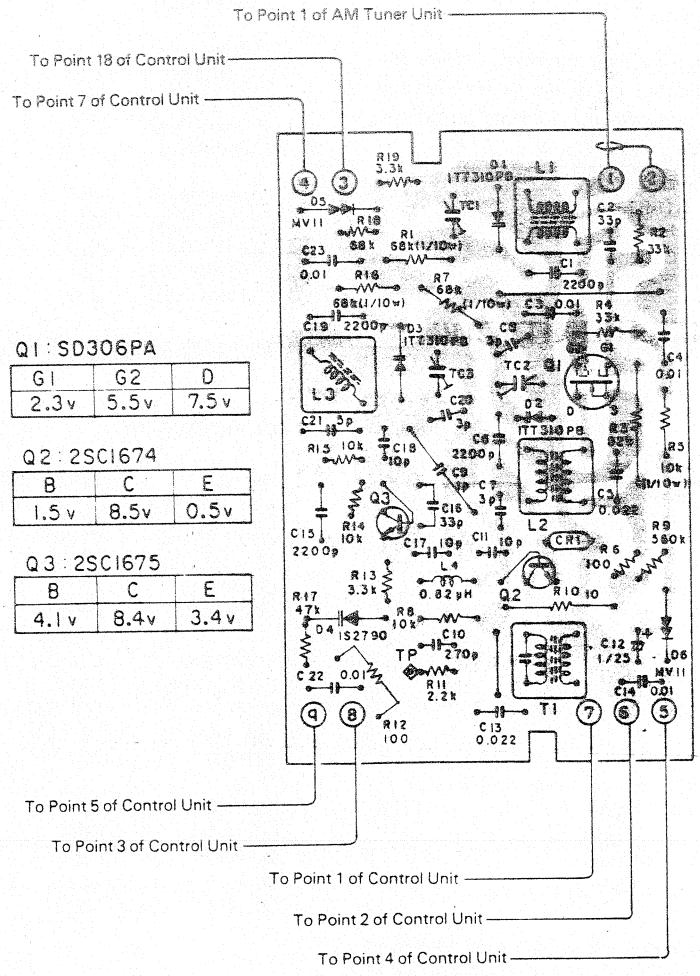

To Point 1 of AM Tuner Unit
To Point 18 of Control Unit
To Point 7 of Control Unit
To Point 5 of Control Unit
To Point 3 of Control Unit
To Point 1 of Control Unit
To Point 2 of Control Unit
To Point 4 of Control Unit
Q1 : SD306PA
G1 | G2 | D
2.3v | 5.5v | 7.5v
Q2 : 2SC1674
B | C | E
1.5v | 8.5v | 0.5v
Q3 : 2SC1675
B | C | E
4.1v | 8.4v | 3.4v

Fig. 25

FM FRONT END UNIT (CWB-062) (KE-2300)

• Parts List

MISCELLANEOUS

Part No.	Symbol & Description	
SD306PA	Q1	
2SC1674	Q2	
2SC1675-M	Q3	
ITT310PB	D1-D3	
1S2790	D4	
MV-11	D5, D6	
CTC 107	L1	
CTC-092	L2	
CTC-09[illegible]	L3	
CTF-015	L4	0.82μH
CTC-043	T1	
CCG-038	TC1-TC3	
CCX-001	CR1	1kΩ/2200pF
CTX−022	Beaded Core	

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
CCN-041	R1, R7, R16	68kΩ/1/10W
RD1/8VS□□□J	R2, R6, R8, R11-R15	
RD1/8PS□□□J	R3, R10	
CCN-040	R4	33kΩ
CCN-007	R5	10kΩ/1/10W
CCN-059	R9	560kΩ
CCN-058	R17	47kΩ
CCN-053	R18	68kΩ/1/4W
CCN-057	R19	3.3kΩ

CAPACITORS

Part No.	Symbol & Description	
CKDYA222K50	C1, C6, C15, C19	
CCDSL330J50	C2	
CKDYF103Z25	C3, C4, C14, C22, C23	
CKDYF223Z25	C5, C13	
CCDCH030D50	C7	
CCDSH030D50	C8	
CGB010K500	C9	
CKDYB271K50	C10	
CCDCH100F50	C11	
CSZA010M25	C12	
CCDSH330J50	C16	
CCDTH120J50	C17	
CCDRH100F50	C18	
CCDTH030D50	C20	
CCDTH050D50	C21	

13. MAIN AMPLIFIER UNIT (CWH-076)

• Parts List

MISCELLANEOUS

Part No.	Symbol & Description	
HA1368	IC1	
HA1368R	IC2	
2SC1740LN or 2SC945L	Q1, Q2	
1S1555 or 1S2076 or 1S2473VH	D1-D6	
SIB-01 or ERB15-01 or W03	D7, D8	
CTH-035	L1, L2, L4	10μH
CTH-018	L3	0.5mH
T24-030	L5	100μH
CTF-003	L6	15μH

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

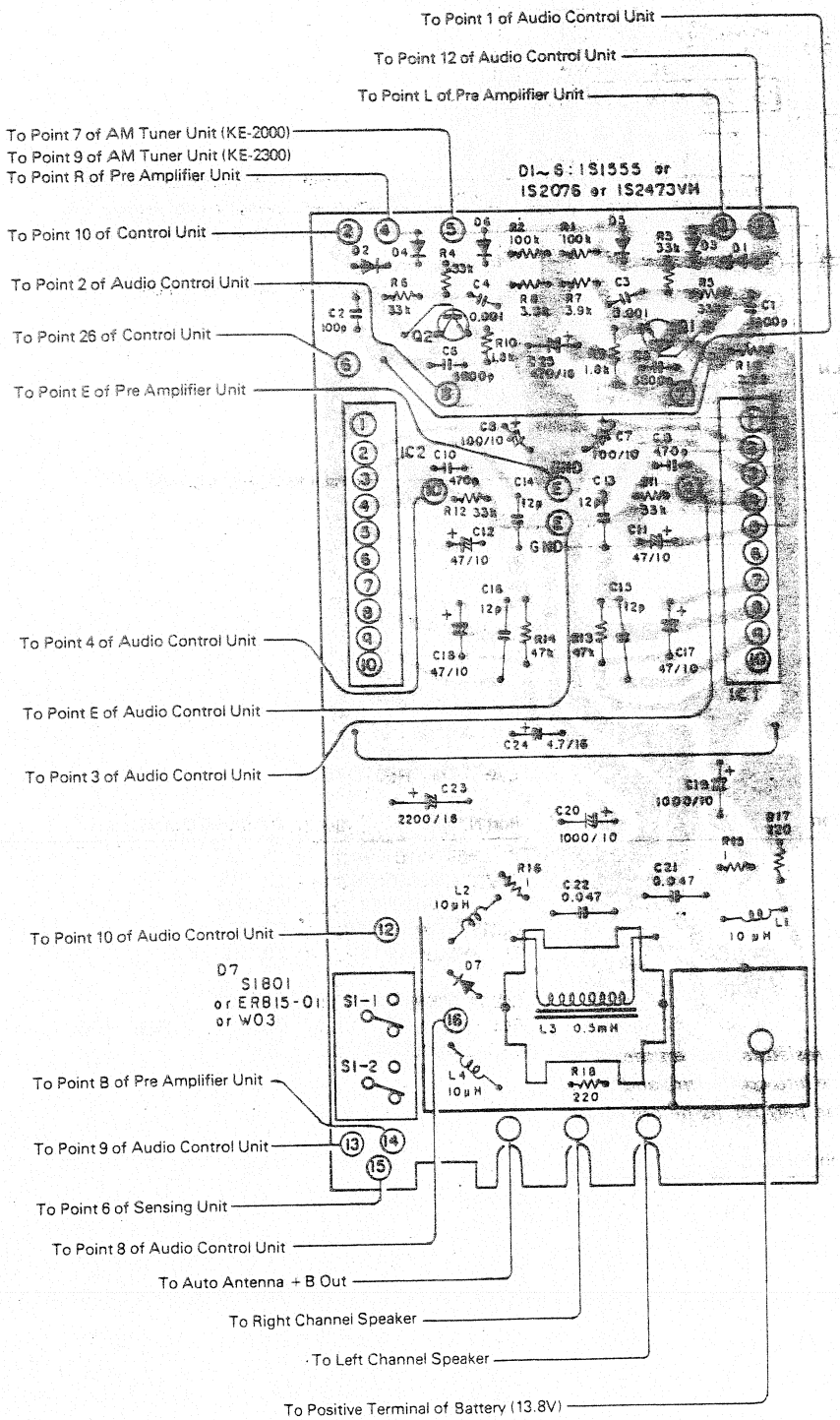
RESISTORS

Part No.	Symbol & Description
RD1/4VS□□□J	R1-R19

CAPACITORS

Part No.	Symbol & Description	
CKDYB101K50	C1, C2	
CQMA102J50	C3, C4	
CQMA682J50	C5, C6	
CEA101P10	C7, C8	
CKDYB471K50	C9, C10	
CEA470P10	C11, C12, C17, C18	
CCDSL120J50	C13-C16	
CCH-022	C19, C20	1000μF/10V
CQMA473M50	C21, C22	
CCH-032	C23	2200μF/16V
CSZA4R7M16	C24	
CCH-020	C25	470μF/16V
CCH-043	C26	100μF/16V
CCL-071	C27	
CCL-081	C28	

- **Parts Connection**


To Point 1 of Audio Control Unit
To Point 12 of Audio Control Unit
To Point L of Pre Amplifier Unit
To Point 7 of AM Tuner Unit (KE-2000)
To Point 9 of AM Tuner Unit (KE-2300)
To Point R of Pre Amplifier Unit
D1~6 : 1S1555 or 1S2076 or 1S2473VH
To Point 10 of Control Unit
To Point 2 of Audio Control Unit
To Point 26 of Control Unit
To Point E of Pre Amplifier Unit
To Point 4 of Audio Control Unit
To Point E of Audio Control Unit
To Point 3 of Audio Control Unit
To Point 10 of Audio Control Unit
D7 S1801 or ERB15-01 or W03
To Point B of Pre Amplifier Unit
To Point 9 of Audio Control Unit
To Point 6 of Sensing Unit
To Point 8 of Audio Control Unit
To Auto Antenna + B Out
To Right Channel Speaker
To Left Channel Speaker
To Positive Terminal of Battery (13.8V)

Q1,2 : 2SC1740 LN or 2SC945L

B	C	E
4.1v	8.8v	3.5v

IC1 : HA1368
IC2 : HA1368R

1	13.7v
2	8.6v
5	1.2v
7	13.1v
9	7.7v
10	7.1v

Fig. 26

14. PRE AMPLIFIER UNIT (CWF-058)

• **Parts Connection**

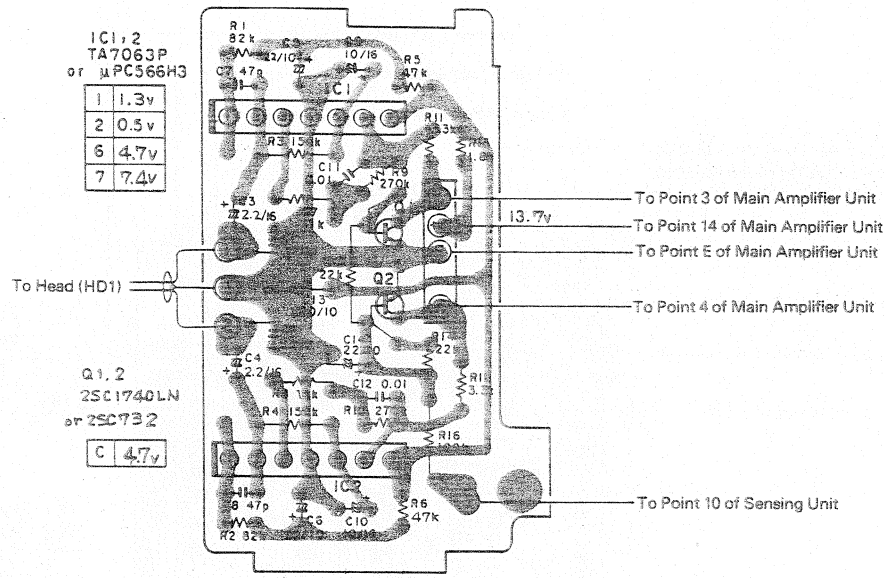


Fig. 27

• **Parts List**

MISCELLANEOUS

Part No.	Symbol & Description
TA7063P or μPC566H3	IC1, IC2
2SC1740LN or 2SC732	Q1, Q2

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description
RD1/4VS□□□J	R1-R16
RD1/8PS□□□J	R17, R18

CAPACITORS

Part No.	Symbol & Description	
CKDYB821K50	C1, C2	
CSZA2R2M16	C3, C4	
CEA220P10	C5, C6	
CCDSL470K50	C7, C8	
CEA100P16	C9, C10	
CQMA103K50	C11, C12	
CCH-028	C13	220μF/10V
CSZA220M10	C14	

15. SENSING UNIT (CWK-163)

KE-2000
KE-2300

- **Parts Connection**

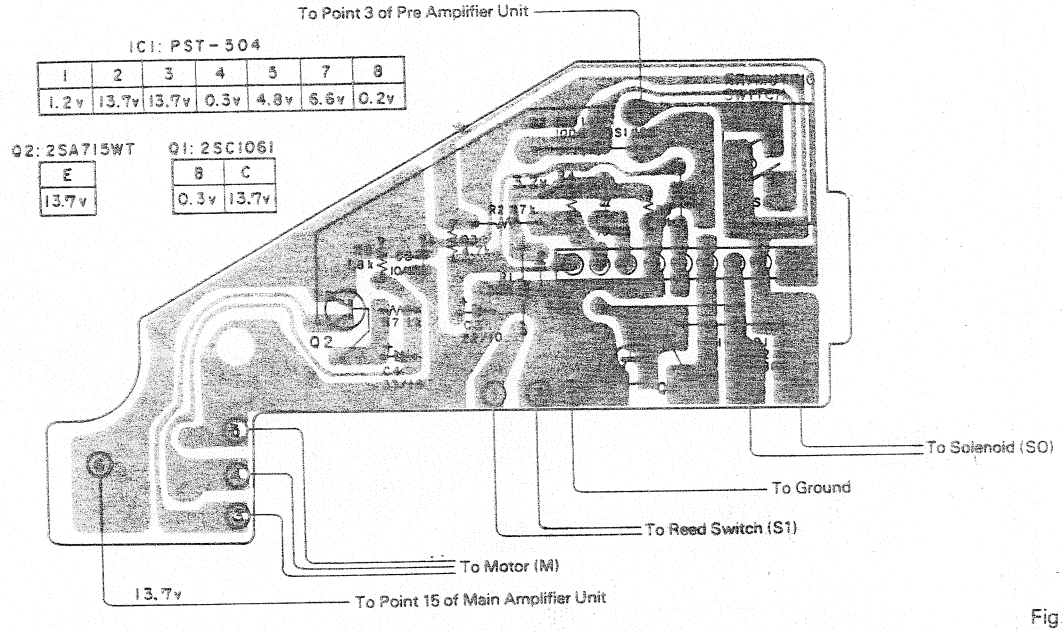


Fig. 28

- **Parts List**

MISCELLANEOUS

Part No.	Symbol & Description	
PST-504	IC1	
2SC1061	Q1	
2SA715WT	Q2	
10D1 or 10D2 or	D1, D2	
1S1886 CSN-047	S1	Switch

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description
RD¼VS□□□J	R1-R5, R7, R8
VACANT	R6

CAPACITORS

Part No.	Symbol & Description	
CCG-005	C1	0.1μF
CEA100P16	C2, C5	
CEA220P10	C3	
CEA330P16	C4	
CQMA123M50	C6	

16. MISCELLANEOUS PARTS LIST

Part No.	Symbol & Description	
E21-005	FU1	Fuse 2A
E21-007	FU2	Fuse 0.5A
CXP-021	SO	Solenoid
CPB-032 or CPB-034	HD1	Head
CXM-046	M	Motor
CDH-036	ANT	Antenna Cable
CSN-055	S1	Switch
CSG-116	S2	Switch
CSG-119	S3	Switch (KE-2000)

Part No.	Symbol & Description	
CSG-120	S3	Switch (KE-2300)
BU-471	D1	LED Array
TLR-102	D2, D3	LED
LN43SYP	D4	LED
TLG-102	D5	LED (KE-2300 only)
CEL-046	IL1	Lamp 14V 40mA

17. CABINET EXPLODED VIEW

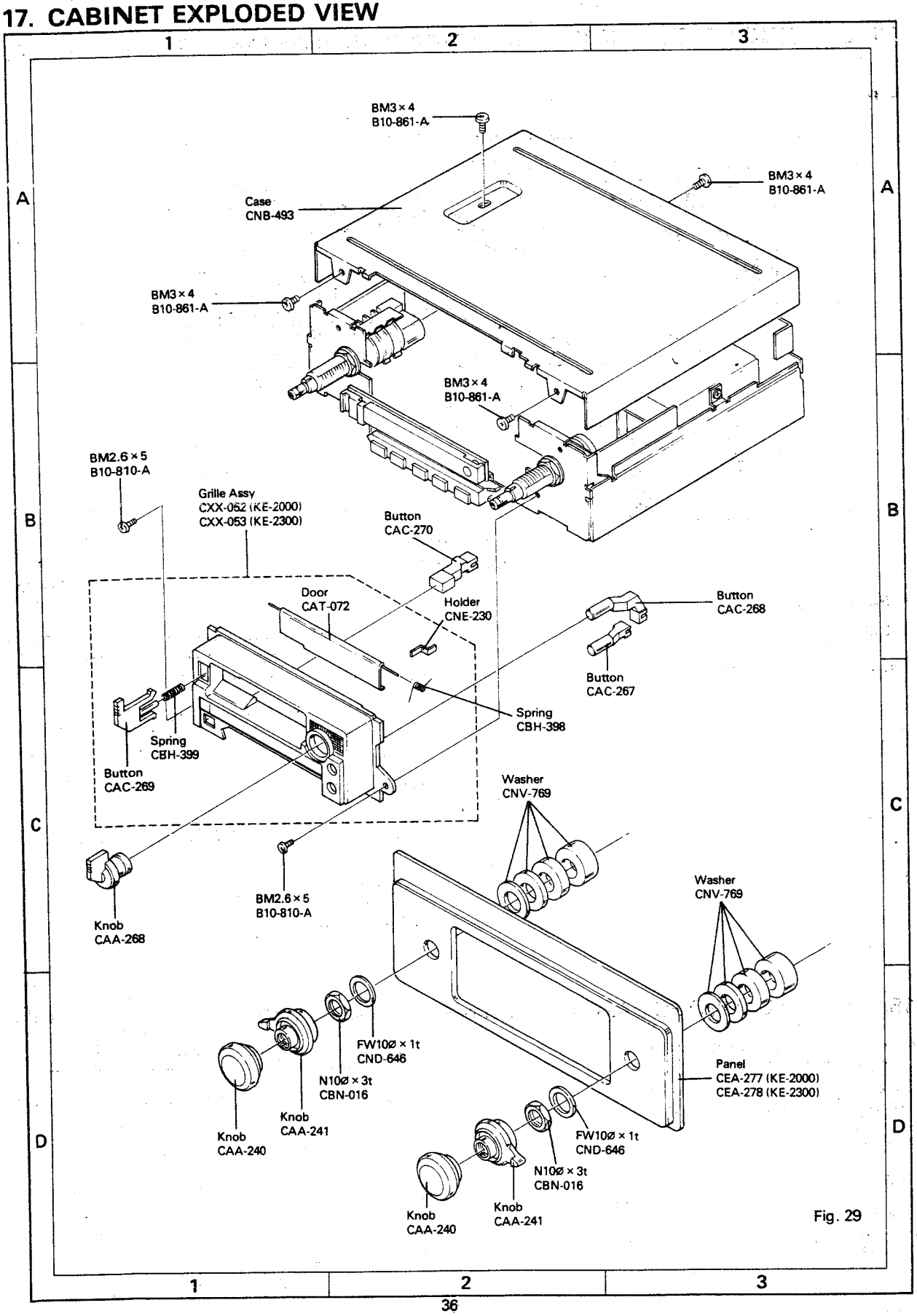


Fig. 29

18. CHASSIS EXPLODED VIEW

NOTICE: Parts whose parts numbers are omitted are subject to being not supplied.

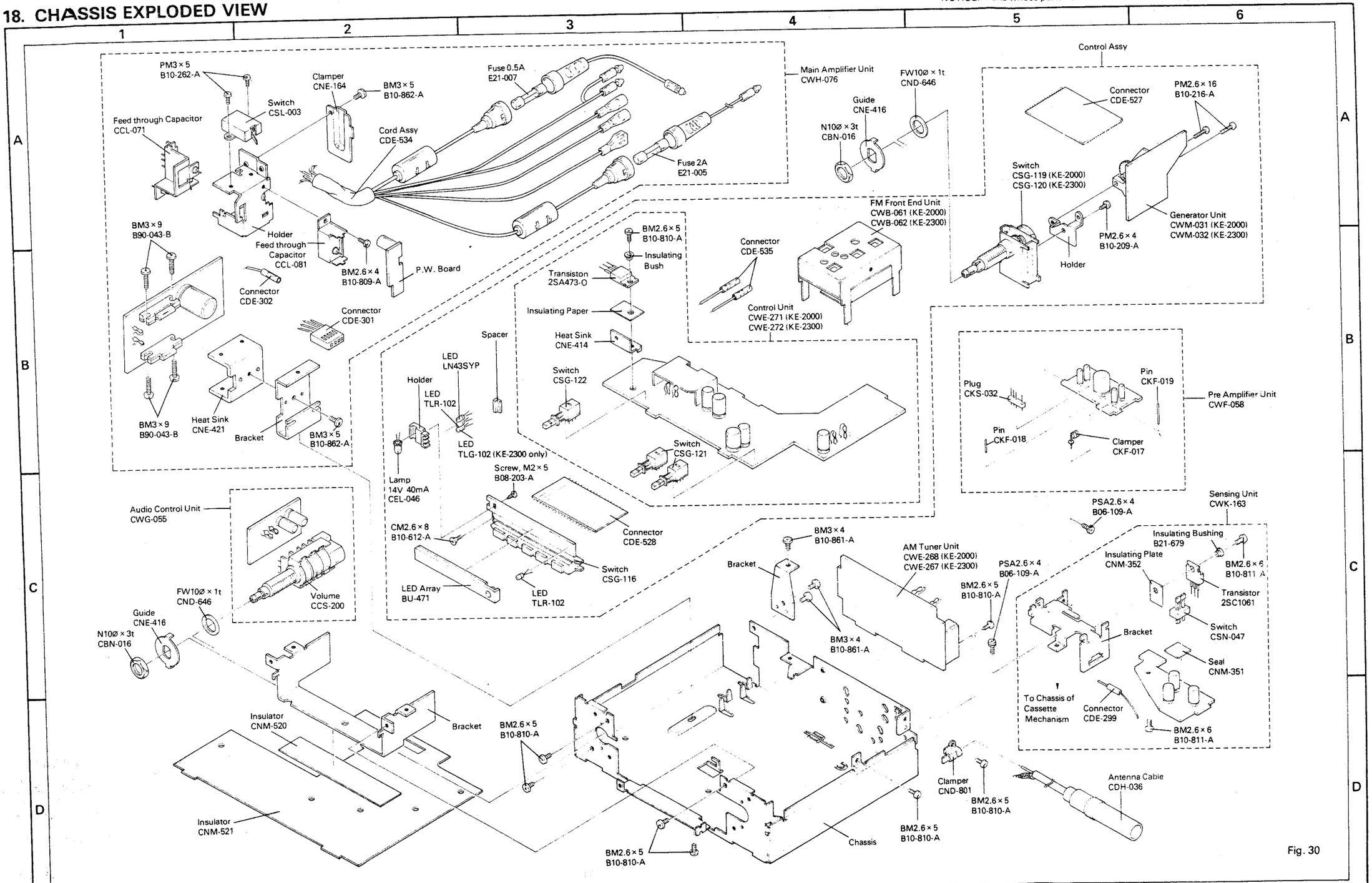


Fig. 30

19. PACKING METHOD

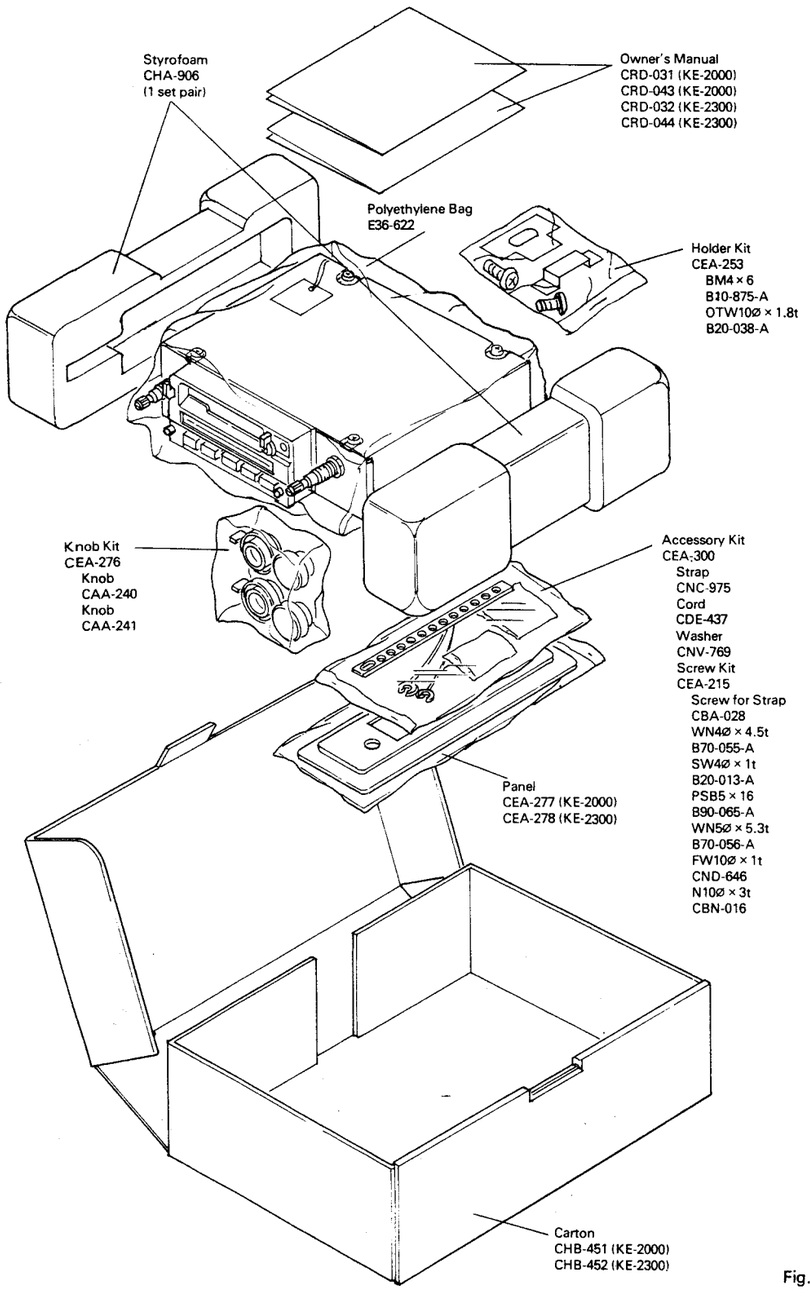


Fig. 31

PIONEER ELECTRONIC CORPORATION
4-1, Meguro 1 chome, Meguro-ku, TOKYO, 153, JAPAN
PIONEER ELECTRONICS OF AMERICA
1925 E. Dominguez St. Long Beach, Calif. 90810
PIONEER ELECTRONIC (EUROPE) N.V.
Luithagen-Haven 9, 2030 Antwerp, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD.
178-184 Boundary Road, Braeside, Victoria 3195, Australia

© DEC. 1978

<CRT-157-0>
Printed in Japan

<78L01E81T>